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SUGAR BULLETIN No. 8.

FIELD EXPERIMENTS WITH SUGAR CANE, VIII.

BY

C. HOLMAN B. WILLIAMS,
Sugar Agronomist and Plant Breeder,

AND

C. CAMERON,
Field Manager.

WITH

A FOREWORD

BY

PROFESSOR J. SYDNEY DASH,
Director of Agriculture.

THE "DAILY CHRONICLE," LTD., GEORGETOWN, DEMERARA,
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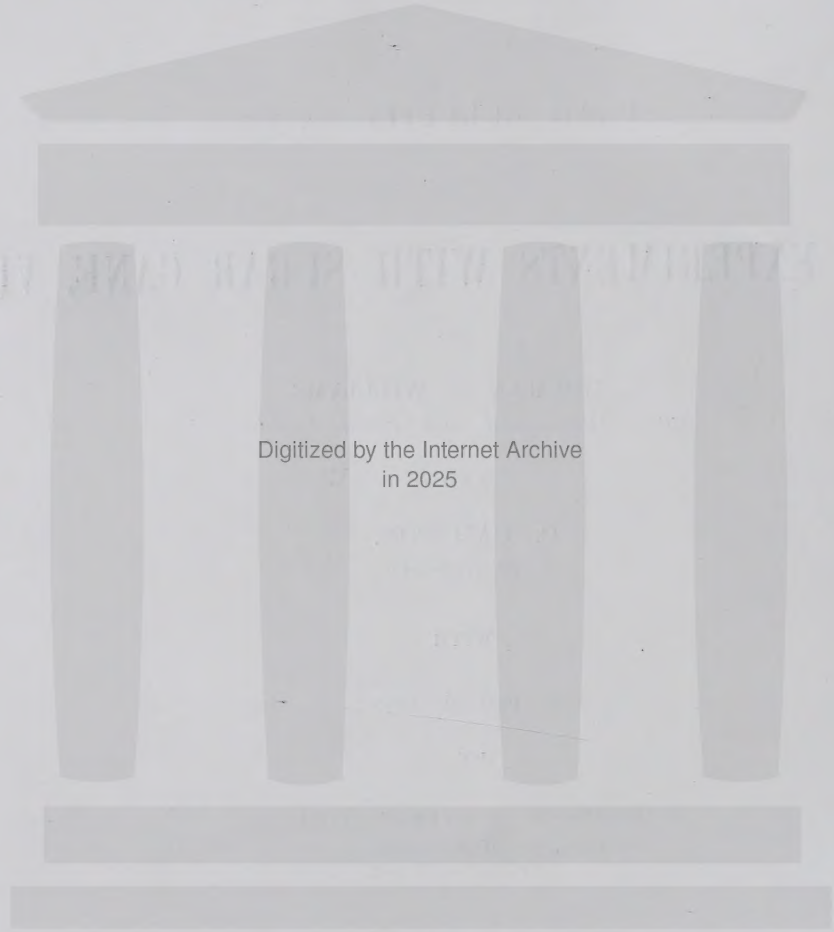

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FOREWORD.

The results of the sugar cane experimental work for the year ended June 30, 1939, are recorded in Sugar Bulletin No. 8 now presented.

The variety trials continue to emphasise the great value to the industry of the cane P.O.J. 2878, which is gaining in popularity over Diamond 10. D. 625 is no longer an important factor. The variety transformation which has taken place during the last ten years is a striking testimony to the efficiency of the planters and their keen co-operation with the Department.

A number of small-scale commercial trials of each of the following varieties, bred at the Sugar Station, exists :—

D. 602/22, D. 49/30, D. 66/30, D. 75/30, D. 450/33, D. 456/33.

D. 166/34, a cross between P.O.J. 2878 and Sorghum, is showing remarkable promise, and small areas are now to be found on all estates in the Colony.

The breeding programme, full details of which are given in the Annual Report of the Sugar Agronomist and Plant Breeder (*Divisional Reports, Department of Agriculture*), now provides for special efforts to find canes both for frontland clays and pegasse soils. Substantial progress is being made but it is too soon to record any locally bred variety for the latter which is better than P.O.J. 2878.

The manurial work of the past year serves to confirm previous recommendations in regard to nitrogen requirements on both soil types—clay and pegasse.

Promising results have been obtained from the use of nitrochalk as a substitute for sulphate of ammonia. This fertiliser is non-acidifying but more expensive than sulphate of ammonia on a nitrogen-equivalent basis. Its use, however, is likely to obviate the necessity for limestone dressings as now recommended in conjunction with sulphate of ammonia, and thus, costs would be evened up. In consequence, commercial trials with nitrochalk are advised.

No recommendations can, as yet, be made in respect to the use of phosphates and potash on clay soils, but it is now possible to advise their use on certain pegasse areas. These experiments are being extended in an effort to investigate further the response to such applications.

Soil acidity still continues to be one of the main problems requiring elucidation : its relationship to the continued use of sulphate of ammonia has been

under laboratory investigation during the past two years. The fundamentals of the problem will have to be clarified to permit a programme of field experiments to be drawn up, and an important difficulty in this connection is the fact that there is, as yet, no sign of diminishing yields on the clay soils. Flood-fallowing and phosphate fixation appear to be involved in some way and the matter becomes more complicated as the investigation proceeds. Perhaps the most pressing need is to find at what pH, on clay and pegasse, the growth of cane will be affected, and what that effect is. Soil samples from fields with different agricultural histories would give some idea of the change from alkaline to acid, and a laboratory study of the soils of the manurial trial plots would throw some light on the fate of added phospate and potash. Field comparisons of sulphate of ammonia and nitrochalk, rock phosphate and basic slag, and of sulphate and muriate of potash, are other lines which require full study.

Faced as we are with the necessity of maintaining variety work at a high level, a research programme of this size cannot be included in the scope of the existing budget, although it is recognised that these questions are equally important from a soil-management point of view. Meanwhile, the recommended application of one ton of limestone at planting seems to be theoretically sufficient as an insurance against extreme acidity, and planters are strongly advised not to neglect this precautionary measure.

J. SYDNEY DASH,
Director of Agriculture.

FIELD EXPERIMENTS WITH SUGAR CANE, VIII.

BY

C. HOLMAN B. WILLIAMS, *Sugar Agronomist and Plant Breeder,*

AND

C. CAMERON, *Field Manager.*

INTRODUCTION.

Fifty-two variety and twenty-four manurial trials were reaped during the year ended June 30, 1939; their results are presented in this Bulletin. The method of conducting the experiments has been described in *Sugar Bulletin* No. 1, and the present Bulletin is arranged similarly to the seven of the series which have already appeared.

In Appendix I will be found tables comparing the monthly rainfall recorded at each trial site, during the progress of the experiments, with the mean monthly rainfall experienced there during preceding years; the variations from the monthly normals are also indicated for each trial.

Trials harvested in the Autumn of 1938 experienced unusually heavy rains in June-July 1937, but the precipitation from August to December of that year was fairly normal. Marked excesses were again recorded from January to April 1938, and the May-July rains were also heavy, though not abnormally so. August was, in general, abnormally wet. The total excesses on most of the Autumn-harvested fields varied from 30 to 40 inches. The heavy rains produced good yields when they fell on cane over three months of age, but their effect on young plants or ratoons was unfavourable.

Trials reaped in the Spring of 1939 experienced continuous heavy rains during all their early growth, for precipitation was high, though normal, in December 1937, excessive from January to April 1938, high, though fairly normal, in May-July, and again excessive in August. September to November proved fairly normal months, but there was a deficit in December. Excesses occurred again in January and April, 1939. The 1939 Spring crop was, in general, adversely affected by the heavy rains experienced during its early life.

Soil and subsoil samples from the various sites have been examined in the Laboratory. The results of the analyses will be found in Appendix II.

Appendix III is a Calendar of the operations carried out on manurial trial sites.

Cordial thanks are extended to the Managers and Staffs of the sugar estates for their courtesy and kind co-operation.

VARIETY TRIALS.

The variety trials are considered under four sub-sections, *viz.*,

(a) Plant cane variety trials,
(b) First ratoon variety trials,
(c) Second and third ratoon variety trials,
(d) Discussion and summary.

SUB-SECTION A.—PLANT CANE VARIETY TRIALS.

Plant Cane Variety Trials Reaped at Sophia Sugar Experiment Station.

Table I presents a list of the plant cane variety trials reaped at the Sophia Sugar Experiment Station during the period under review.

Table I.—**Plant Cane Variety Trials Reaped at Sophia Experiment Station.**

Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
		Planting.	Reaping.	Varieties.	Replicates.	
4 East A	12.00	19.VIII.37	19.VIII.38	8	5	Randomised Blocks.
10 West	12.25	5.VIII.37	16.VIII.38	9	5	,,
11 ,, A	12.50	12.XI.37	24.XI.38	8	5	,,
11 ,, B	12.50	12.XI.37	24.XI.38	5	5	,,
14 ,,	13.75	1.VI.37	27.VII.38	7	5	,,

Sophia—Field 4 E.—Plant Canes.

The results of the trial in Field 4 E., Sophia, are given in Table II and shown graphically in Figure I.

Table II.—**Results of a Variety Trial in Field 4 E., Sophia.**

Plants, 12.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
Mean Yields:	P.O.J.2878	24.07	14.06	4.31	88.9	3.42	171.00
	D. 31/33	18.29	15.06	3.81	90.9	2.78	139.00
	D. 34/33	14.09	14.08	4.31	88.8	1.97	98.50
	D. 85/33	14.05	13.42	5.62	87.2	1.87	93.50
	D. 83/33	13.87	12.02	5.32	85.1	1.67	83.50
	M.P.R. 7	12.16	12.66	5.80	87.0	1.61	80.50
	D. 39/33	12.65	11.48	6.57	84.4	1.46	73.00
	D. 40/33	9.67	12.78	5.01	86.5	1.21	60.50
	Mean:					2.00	100.00
	Standard Error:					0.28	14.00
	Significant Difference, 20 : 1 :					0.81	40.50

The yield of cane was poor but its quality was satisfactory. The standard cane, P.O.J. 2878, led all the others by a wide margin and was significantly better than all except D. 31/33. In view of their performance in other trials, D. 34/33 (D. 666/18 x Diamond 10) and D. 39/33 (D. 666/18 x Diamond 10) will be tested further. The remaining canes on the list will be discarded.

Sophia—Field 10 W.—Plant Canes.

Table III and Figure I present the results of the trial in Field 10 W., Sophia.

TABLE III.—**Results of a Variety Trial in Field 10 W., Sophia.**

PLANTS, 12.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
MEAN YIELDS:	D. 552/33	40.40	14.68	6.09	88.2	5.95	125.79
	D. 67/30	35.81	15.96	5.16	91.0	5.65	119.45
	D. 63/33	37.07	14.11	5.85	87.4	5.18	109.51
	P.O.J. 2878	32.10	15.54	5.40	89.6	4.97	105.07
	D. 85/33	34.73	13.77	6.98	86.0	4.75	100.42
	D. 44/33	32.13	13.02	8.82	84.8	4.19	88.58
	D. 31/33	26.42	15.49	3.76	91.4	4.10	86.68
	M.P.R. 7	31.47	12.42	8.68	84.8	3.93	83.09
	D. 100/29	33.11	11.52	9.36	82.3	3.86	81.61
	Mean:					4.73	100.00
	Standard Error:					0.40	8.46
	Significant Difference, 20 : 1:					1.16	24.52

For the better varieties, both cane yields and juice quality were satisfactory. D. 552/33 (D. 219/30 x Diamond 10) and D. 67/30 (Diamond 10 x S.C. 12/4) both led P.O.J. 2878 by wide margins. This is the only result so far available for D. 552/33. D. 67/30 is known to give high yields of good quality plant cane but more information is needed as to its ratooning capacity. The varieties below P.O.J. 2878 will be discarded.

Sophia—Field 11 W.—Plant Canes.

In Table IV and Figure I will be found the results of the two tests in Field 11 W., Sophia.

TABLE IV.—**Results of 2 Variety Trials in Field 11 W., Sophia.**

PLANTS, 12.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre.	
						Tons.	% Mean.
			Experiment A.				
MEAN YIELDS:	D. 419/33	28.70	14.42	7.13	86.9	4.17	132.38
	D. 119/34	23.41	13.48	10.09	86.4	3.20	101.59
	D. 109/34	22.67	13.99	7.96	85.3	3.13	99.36
	D. 112/34	22.36	13.79	8.85	85.0	3.07	97.46
	D. 113/34	24.28	12.85	7.08	85.8	3.06	97.14
	P.O.J. 2878	21.79	14.19	8.57	86.6	3.03	96 19
	D. 116/34	18.54	15.29	6.18	88.7	2.85	90.48
	D. 111/34	18.85	14.26	9.30	87.1	2.69	85.40
	Mean:					3.15	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1 :					—	—
			Experiment B.				
MEAN YIELDS:	P.O.J. 2878	21.48	15.76	7.20	89.2	3.37	112.33
	D. 11/32	21.76	14.51	7.36	87.0	3.15	105.00
	D. 121/33	20.39	14.58	7.85	86.2	2.93	97.67
	D. 189/33	19.38	14.33	9.58	86.3	2.77	92.33
	D. 110/34	18.71	14.61	5.50	88.8	2.76	92.00
	Mean:					3.00	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1 :					—	—

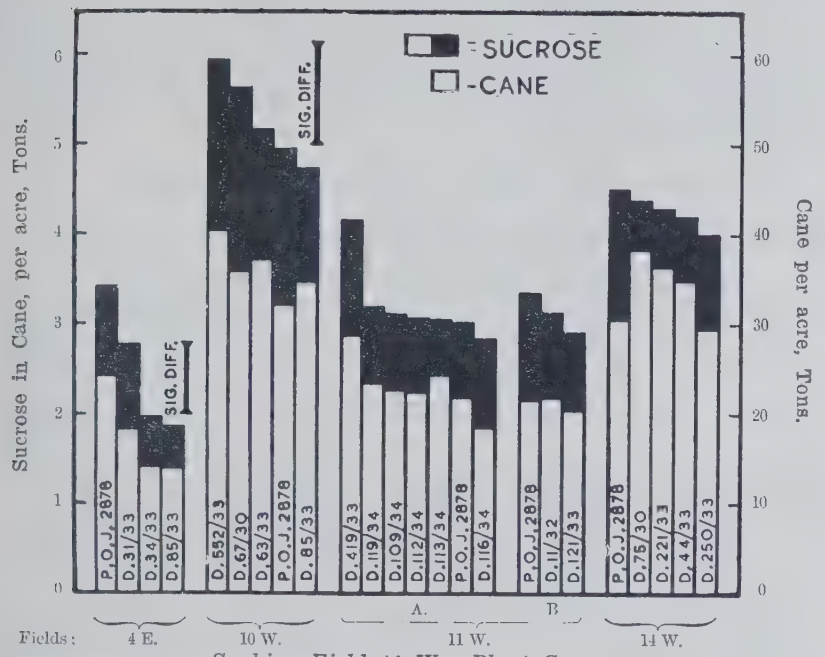
In both trials the yields were mediocre and the cane not quite mature at harvest.

D. 419/33 (Co. 281 x Diamond 10), which surpassed all the canes in Experiment A, has shown much promise in other trials and will be closely watched. D. 113/34 has not done very well in other tests and, with the last two canes in the list, will be discarded.

None of the canes in Experiment B is likely to compete with P.O.J. 2878 and this experiment will be discarded.

FIG. I.

Sucrose and Cane Yields from Plant Canes at Sophia.



Sophia—Field 14 W.—Plant Canes.

The results of the experiment in Field 14 W., Sophia, are given in Table V and Figure I.

TABLE V.—**Results of a Variety Trial in Field 14 W., Sophia.**

PLANTS, 13.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
MEAN YIELDS:	P.O.J. 2878	30.49	14.99	5.66	89.6	4.53	111.58
	D. 75/30	38.44	11.51	14.02	80.9	4.40	108.37
	D. 221/33	36.44	11.76	12.47	81.4	4.31	106.16
	D. 44/33	34.87	12.18	12.06	83.1	4.22	103.94
	D. 250/33	29.54	13.72	7.22	87.4	4.02	99.01
	M.P.R. 7	31.99	11.80	11.24	82.3	3.78	93.10
	D. 49/33	22.00	14.33	5.13	88.8	3.14	77.34
	Mean:					4.06	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1:					—	—

Yields of the better varieties were fair but the glucose ratios indicate that several canes were immature at harvest.

P.O.J. 2878 topped the list but the cane yields indicate that the positions may have been reversed if D. 75/30 (Badila x D. 625) and D. 221/33 (D. 666/18 x Diamond 10) had been mature. D. 75/30 has several good results to its credit and estates have been advised to test it commercially. The last four canes on the list will be discarded.

Plant Cane Variety Trials Reaped in Berbice.

Table VI is a list of the plant cane variety trials reaped in Berbice.

Table VI.—**Plant Cane Variety Trials Reaped in Berbice.**

Estate.	Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
			Planting.	Reaping.	Varieties.	Replicates.	
Port Mourant	1 P.M.E.	14.50	15.IX.37	30.XI.38	2	5	Randomised Blocks.
"	5 A.	12.75	26.II.38	17.III.39	6	5	"
Albion	23 B.	14.25	29 IX.37	8.XII.38	3	5	"
Rose Hall	5 C.	12.50	11.II.38	23.II.39	3	5	"
Blairmont	2 Ab.	13.00	13.I.38	16.II.39	4	6	"
Bath	7 F.	13.50	10.III.38	27.IV.39	6	5	"

Port Mourant—Field 1 P.M.E.—Plant Canes.

The results of the experiment in Field 1 P.M.E., Port Mourant, are given in Table VII and Figure II.

Table VII.—**Results of a Variety Trial in Field 1 P.M.E., Port Mourant.**

Plants, 14.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
Mean Yields:	P.O.J. 2878	41.26	14.46	4.73	90.4	5.97	105.85
	D. 7/33	41.73	12.81	10.45	82.8	5.32	94.33
	Mean:					5.64	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1 :					—	—

P.O.J. 2878 and D. 7/33 gave the same tonnage but the inferior juice of the latter variety caused it to yield 11 per cent. less sucrose than the former. D. 7/33 has given heavy tonnages on several occasions but has now been dropped from the trials on account of its poor quality.

Port Mourant—Field 5 A.—Plant Canes.

Table VIII and Figure II present the results from Field 5 A., Port Mourant.

TABLE VIII.—**Results of a Variety Trial in Field 5 A., Port Mourant.**

PLANTS, 12.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
MEAN YIELDS:	D. 450/33	35.83	14.19	5.37	89.1	5.08	112.64
	D. 44/33	36.35	13.19	11.40	84.7	4.81	106.65
	P.O.J. 2878	32.13	14.31	7.87	88.2	4.58	101.55
	D. 83/33	32.69	13.16	10.40	85.2	4.28	94.90
	D. 85/33	32.02	13.23	10.29	85.7	4.24	94.01
	D. 456/33	29.27	13.91	7.45	87.3	4.08	90.47
	Mean:					4.51	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1 :					—	—

In this test, D. 450/33 (P.O.J. 2878 x Diamond 10) has done unusually well and D. 456/33 (P.O.J. 2878 x Diamond 10) rather poorly. Their behaviour as ratoons on this soil will be watched with interest. D. 44/33, D. 83/33, and D. 85 33 will be discarded. The first named gave a fair yield of poor quality cane in this trial but its performance elsewhere has not been impressive.

Albion—Field 23 B.—Plant Canes.

Table IX and Figure II present the results of the variety trial in Field 23 B., Albion.

TABLE IX.—**Results of a Variety Trial in Field 23 B., Albion.**

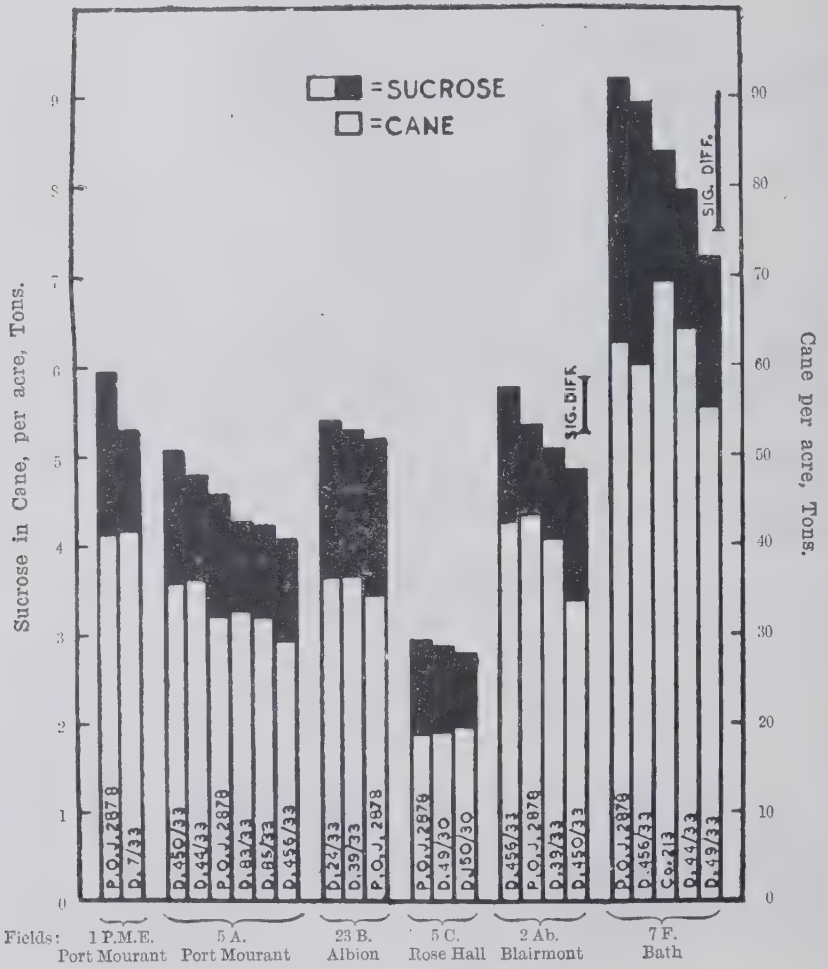
PLANTS, 14.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
MEAN YIELDS:	D. 24/33	36.44	14.84	7.13	87.3	5.41	102.08
	D. 39/33	36.51	14.58	6.67	87.8	5.30	100.00
	P.O.J.2878	34.41	15.00	6.06	87.8	5.19	97.92
	Mean:					5.30	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1 :					—	—

The heavier tonnages yielded by D. 24/33 (S.C. 12/4 x Diamond 10) and D. 39/33 (D. 666/18 x Diamond 10) enabled them to outyield the standard by four and two per cent., respectively. The juice purities of both these seedlings were approximately identical with that of P.O.J. 2878, but their sucrose contents were slightly inferior. Both these 1933 canes merit further consideration.

FIG. II.

Sucrose and Cane Yields from Plant Canes at Plns. Port Mourant, Albion, Rose Hall, Blairmont and Bath.



Rose Hall—Field 5 C.—Plant Canes.

The data from the test in Field 5 C., Rose Hall, are given in Table X and Figure II.

TABLE X.—**Results of a Variety Trial in Field 5 C., Rose Hall.**

PLANTS, 12.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
MEAN YIELDS:	P.O.J. 2878	18.85	15.63	5.88	92.6	2.95	102.43
	D. 49/30	19.05	15.09	6.71	92.2	2.88	100.00
	D. 150/30	19.71	14.15	10.93	86.9	2.80	97.22
	Mean:					2.88	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1 :					—	—

Yields were poor but the cane was of good quality. There is little to choose between the three yields, as here recorded, and all three canes will be harvested again as ratoons. Commercial tests with D. 49/30 have been advised.

Blairmont—Field 2 Ab.—Plant Canes.

Table XI and Figure II show the results of the experiment in Field 2 Ab., Blairmont.

TABLE XI.—**Results of a Variety Trial in Field 2 Ab., Blairmont.**

PLANTS, 13.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
MEAN YIELDS:	D. 456/33	42.73	13.63	7.27	86.5	5.78	109.68
	P.O.J. 2878	43.39	12.40	10.40	83.6	5.36	101.71
	D. 39/33	40.60	12.55	7.31	85.9	5.09	96.58
	D. 450/33	33.87	14.37	5.32	88.9	4.86	92.22
	Mean:					5.27	100.00
	Standard Error:					0.21	3.98
	Significant Difference, 20 : 1 :					0.64	12.14

D. 456/33 (P.O.J. 2878 x Diamond 10), which heads the list, is a promising cane with which commercial trials have been advised. In the five plant cane and two first ratoon trials reaped so far, D. 39/33 (D. 666/18 x Diamond 10) has averaged just slightly better than P.O.J. 2878. In this trial, P.O.J. 2878 appears to have been immature at 13 months.

Bath—Field 7 F.—Plant Canes.

The experimental results from Field 7 F., Bath, are given in Table XII and Figure II.

TABLE XII.—**Results of a Variety Trial in Field 7 F., Bath.**

PLANTS, 13.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
MEAN YIELDS:	P.O.J. 2878	62.63	14.75	9.07	89.7	9.21	113.56
	D. 456/33	60.19	14.77	8.57	88.8	8.95	110.36
	Co. 213	69.40	12.14	11.17	86.8	8.40	103.58
	D. 44/33	64.13	12.45	13.73	84.8	7.97	98.27
	D. 49/30	55.26	13.07	6.35	89.7	7.22	89.03
	M.P.R. 7	54.60	12.66	12.59	85.0	6.91	85.20
	Mean:					8.11	100.00
	Standard Error:					0.52	6.41
	Significant Difference, 20: 1:					1.53	18.87

Yields were exceptionally high but glucose ratios were also above normal. In particular, Co. 213, D. 44/33 and M.P.R. 7 were immature.

In sucrose yield, P.O.J. 2878 led D. 456/33 (P.O.J. 2878 x Diamond 10) by three and Co. 213 by ten per cent., the last effect being due to a better quality juice, for the Indian seedling outyielded the Javan by seven tons of cane per acre. D. 44/33, which yields fair quantities of mediocre cane, and M.P.R. 7 will not be tested further. D. 49/30 has a good record elsewhere and its ratoons will be weighed.

PLANT CANE VARIETY TRIALS REAPED IN EAST DEMERARA.

Table XIII is a list of the plant cane variety trials reaped in East Demerara.

TABLE XIII.—**Plant Cane Variety Trials Reaped in East Demerara.**

Estate.	Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
			Planting.	Reaping.	Varieties.	Replicates.	
Lusignan	65 A.W.	12.25	10.II.38	20.II.39	5	5	Randomised Blocks.
La Bonne Intention	15 F.	14.00	28.IX.37	1.XII.38	4	5	,,
Diamond	119 G.D.	15.25	28.IV.37	2.VIII.38	4	5	,,

Lusignan—Field 65 A.W.—Plant Canes.

The data from the trial in Field 65 A.W., Lusignan, appear in Table XIV and Figure III.

TABLE XIV.—**Results of a Variety Trial in Field 65 A.W., Lusignan.**

PLANTS, 12.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
MEAN YIELDS:	D. 75/30	32.05	12.04	15.30	81.5	3.85	129 63
	D. 456/33	23.23	13.67	10.40	85.8	3.15	106.06
	D. 83/33	23.36	12.78	10.37	82.7	2.98	100.34
	P.O.J.2878	20.33	13.52	9.10	86.4	2.75	92.59
	D. 450/33	16.87	12.69	8.55	85.8	2.13	71.72
	Mean:					2.97	100.00
	Standard Error:					0.18	6.06
	Significant Difference, 20 : 1:					0.54	18.18

Yields were somewhat low and the varieties immature at harvest, which took place somewhat early.

D. 75/30 (Badila X D. 625), a cane with a good reputation, proved significantly better than any other tried. D. 456/33 (P.O.J. 2878 x Diamond 10) has shown some promise in small commercial plantings on this estate. D. 83 33 will not be tested further.

La Bonne Intention—Field 15 F.—Plant Canes.

In Figure III and Table XV will be found the data from the test in Field 15 F., La Bonne Intention.

TABLE XV.—**Results of a Variety Trial in Field 15 F., La Bonne Intention.**

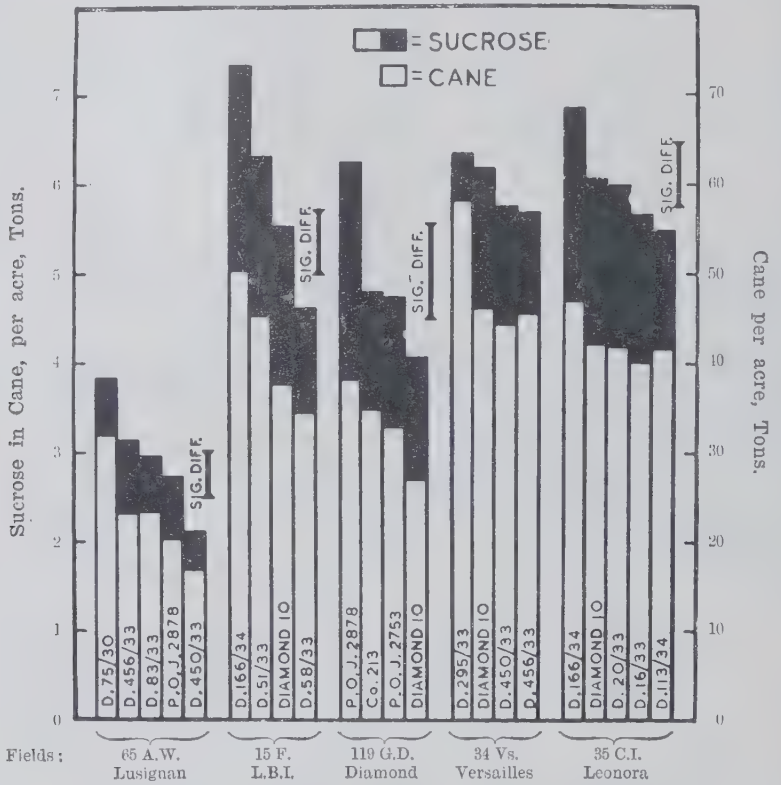
PLANTS, 14.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.
MEAN YIELDS:	D. 166/34	50.36	14.61	5.98	87.8	7.35	123.12
	D. 51/33	45.40	13.90	9.00	86.9	6.33	106.03
	Diamond 10	37.67	14.74	5.69	90.0	5.55	92.96
	D. 58/33	34.50	13.56	7.87	86.5	4.64	77.72
	Mean:					5.97	100.00
	Standard Error:					0.24	4.02
	Significant Difference, 20 : 1:					0.74	12.40

D. 166/34 (P.O.J. 2878 x Sorghum) convincingly outyielded all the other canes and was 30 per cent. better than Diamond 10. This cane appears to combine high tonnage with satisfactory quality. D. 58/33 will be discarded but D. 51/33 (D. 666/18 x Diamond 10) will be tested further.

FIG. III.

Sucrose and Cane Yields from Plant Canes at Pins. Lusignan, La Bonne Intention, Diamond, Versailles and Leonora.



Diamond—Field 119 G.D.—Plant Canes.

Data from the trial in Field 119 G.D., Diamond, are shown in Table XVI and Figure III.

TABLE XVI.—**Results of a Variety Trial in Field 119 G.D., Diamond.**

PLANTS, 15.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
MEAN YIELDS:	P.O.J. 2878	38.22	16.39	3.62	92.7	6.27	125.65
	Co. 213	34.86	13.85	3.93	90.8	4.83	96.79
	P.O.J. 2753	32.94	14.51	4.23	90.3	4.77	95.59
	Diamond 10	27.02	15.12	3.93	92.0	4.08	81.76
	Mean:					4.99	100.00
	Standard Error:					0.35	7.01
	Significant Difference, 20 : 1:					1.08	21.64

P.O.J. 2878 was significantly better than any other cane. Both Co. 213 and P.O.J. 2753 have outyielded Diamond 10 on this soil type more than once and consideration should be given to replacing Diamond 10 by P.O.J. 2878 in the new plantings and to giving Co. 213 extended commercial tests.

PLANT CANE VARIETY TRIALS REAPED IN WEST DEMERARA.

Table XVII is a list of the plant cane variety trials reaped in West Demerara.

TABLE XVII.—**Plant Cane Variety Trials Reaped in West Demerara.**

Estate.	Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
			Planting.	Reaping.	Varieties.	Replicates.	
Versailles	34 V.S.	13.00	15.X.37	18.XI.38	4	4	Latin Square
Leonora	35 C.I.	13.00	6.X.37	8.XI.38	5	5	„

Versailles—Field 34 V.S.—Plant Canes.

Table XVIII and Figure III present the results of the trial in Field 34 V.S., Versailles.

TABLE XVIII.—**Results of a Variety Trial in Field 34 V.S., Versailles.**

PLANTS, 13.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
MEAN YIELDS:	D. 295/33	58.36	10.89	18.43	81.8	6.36	105.82
	Diamond 10	46.24	13.44	13.74	87.4	6.21	103.33
	D. 450/33	44.38	13.04	11.67	87.9	5.78	96.17
	D. 456/33	45.59	12.47	15.70	84.7	5.71	95.01
	Mean:					6.01	100.00
	Standard Error:					—	—
	Significant Difference, 20 : 1:					—	—

D. 295/33 (D. 66/30 x D. 625) which heads the list, is there by virtue of a very high yield of poor quality cane. This drawback makes it doubtful if this seedling will be of much value. D. 456/33 (P.O.J. 2878 x Diamond 10) fills an unusually low position in this trial. Cane yields were very high in this experiment and it is obvious from the glucose ratios that none of the varieties was mature at harvest.

Leonora—Field 35 C.I.—Plant Canes.

The results of the trial in Field 35 C.I., Leonora, are given in Table XIX and Figure III.

TABLE XIX.—**Results of a Variety Trial in Field 35 C.I., Leonora.**

PLANTS, 13.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,	
						Tons.	% Mean.
MEAN YIELDS:	D. 166/34	46.99	14.63	8.47	88.3	6.87	113.93
	Diamond 10	42.22	14.47	7.37	90.3	6.09	100.99
	D. 20/33	41.89	14.36	9.56	88.2	6.01	99.67
	D. 16/33	40.07	14.19	7.74	86.6	5.68	94.20
	D. 113/34	41.69	13.24	10.70	86.4	5.50	91.21
	Mean:					6.03	100.00
	Standard Error:					0.24	3.98
	Significant Difference, 20 : 1:					0.74	12.27

As in Field 15 F., La Bonne Intention, D. 166/34 (P.O.J. 2878 x Sorghum) was significantly better than all the other varieties, having given a heavy yield of good quality cane. D. 20/33 (D. 53/27 x Diamond 10) gave almost the same yield as Diamond 10 and merits further consideration. This cane and D. 113/34 (D. 1/28 x Diamond 10) appear to have been immature when harvested as 13-month plants.

SUB-SECTION B.—FIRST RATOON VARIETY TRIALS.

First Ratoon Variety Trials Reaped at Sophia Sugar Experiment Station.

Details of the reaping dates, layout, etc., of the first ratoon variety trials reaped at the Sophia Sugar Experiment Station are recorded in Table XX.

Table XX.—**First Ratoon Variety Trials Reaped at Sophia Experiment Station.**

Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
		Previous Reaping.	Reaping.	Varieties.	Replicates.	
4 East B	12.00	22.IV.38	24.IV.39	5	5	Randomised Blocks.
13 „	12.00	1.III.38	28.II.39	5	5	„
14 „	11.50	30.XI.37	16.XI.38	3	6	„
16 „ A	12.50	13.X.37	28.X.38	2	5	„
16 „ C	12.50	13.X.37	28.X.38	2	5	„
17 „	12.50	9.X.37	24.X.38	3	4	„
2 West	12.00	16.VIII.37	12.VIII.38	2	5	„
4 „ A	12.00	12.XI.37	8.XI.38	2	5	„
4 „ D	12.00	12.XI.37	8.XI.38	4	5	„
6 „	12.75	22.IX.37	18.X.38	3	6	„
13 „	13.50	14.III.38	26.IV.39	2	5	„
16 „	11.50	3.XII.37	17.XI.38	10	5	„

Sophia—Field 4 E.—First Ratoons.

The results of the experiment in Field 4 E., Sophia, are presented in Table XXI and Figure IV.

TABLE XXI.—**Results of a Variety Trial in Field 4 E., Sophia.**

1ST RATOONS, 12.00 months.

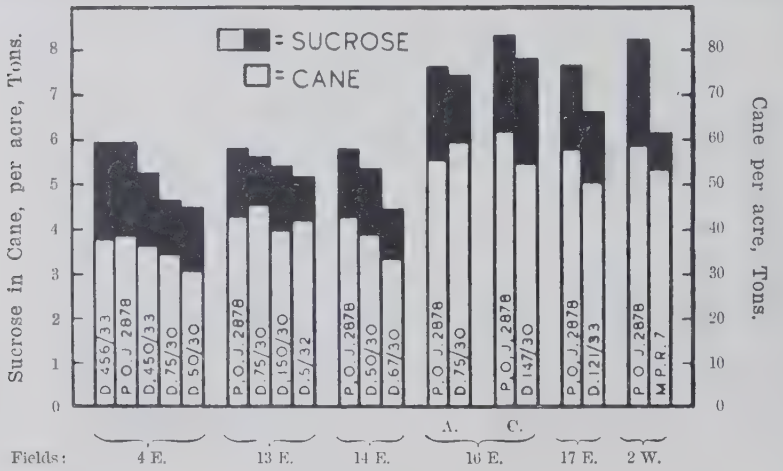
	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane, per Acre Tons.
MEAN YIELDS:	P.O.J. 2878	18.85	16.61	5.06	92.7	3.11	113.50	D. 456/33	5.98
	D. 456/33	18.75	16.48	6.21	92.0	3.08	112.41	P.O.J. 2878	5.98
	D. 450/33	19.45	15.57	4.32	90.6	3.02	110.22	D. 450/33	5.29
	D. 50/30	16.43	15.71	5.62	91.1	2.55	93.07	D. 75/30	4.68
	D. 75/30	12.54	15.43	8.52	89.7	1.93	70.44	D. 50/30	4.51
	Mean:					2.74	100.00		
	Standard Error:					0.21	7.66		
	Significant Difference, 20 : 1 :					0.63	22.99		

(*Plant cane results reported in Sugar Bull. No. 7, p. 2.*)

P.O.J. 2878 outyielded D. 456/33 (P.O.J. 2878 x Diamond 10) by a very slight margin as a first ratoon and tied with it in total yield for two crops. D. 75/30 (Badila x D. 625) was disappointing. D. 50/30 will be discarded. Cane yields were low but purities and sucrose contents were high.

FIG. IV.

Sucrose and Cane Yields from Plant Canes and First Ratoons at Sophia.



Sophia—Field 13 E.—First Ratoons.

The data from the trial in Field 13 E., Sophia, appear in Table XXII and Figure IV.

TABLE XXII.—**Results of a Variety Trial in Field 13 E., Sophia.**

1ST RATOONS, 12.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
	P.O.J. 2878	16.56	15.12	3.53	90.9	2.52	140.78	P.O.J. 2878	5.83
MEAN	D. 150/30	13.65	15.05	5.38	88.8	2.05	114.53	D. 75/30	5.67
YIELDS:	D. 75/30	12.38	14.60	9.10	87.7	1.81	101.12	D. 150/30	5.44
	D. 5/32	12.79	13.67	5.03	88.8	1.76	98.32	D. 5/32	5.20
	D. 147/30	5.31	14.87	5.67	89.8	0.80	44.69	D. 147/30	3.47
	Mean:					1.79	100.00		
	Standard Error:					0.24	13.41		
	Significant Difference, 20: 1					0.72	40.22		

(*Plant cane results reported in Sugar Bull. No. 7, p. 3.*)

Yields were low but purities and sucrose contents high. As a first ratoon and in the total yield for two crops, P.O.J. 2878 outyielded all competitors. In the latter respect, however, D. 75/30 (Badila x D. 625) made a fair showing. D. 5/32 and D. 147/30 have been discarded.

Sophia—Field 14 E.—First Ratoons.

Table XXIII and Figure IV present the results of the test in Field 14 E., Sophia.

TABLE XXIII.—**Results of a Variety Trial in Field 14 E., Sophia.**

1ST RATOONS, 11.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
	D. 50/30	15.45	14.75	5.91	91.1	2.29	108.53	P.O.J. 2878	5.82
MEAN	P.O.J. 2878	16.44	13.52	7.35	87.0	2.25	106.63	D. 50/30	5.39
YIELDS:	D. 67/30	12.93	13.87	7.02	89.0	1.80	85.31	D. 67/30	4.49
	Mean:					2.11	100.00		
	Standard Error					—	—		
	Significant Difference, 20: 1					—	—		

(*Plant cane results reported in Sugar Bull. No. 7, p. 5.*)

Yields were poor but juices fair. D. 50/30 will not generally compete with P.O.J. 2878 and it has been discarded. D. 67/30 has done much better in other trials.

Sophia—Field 16 E.—First Ratoons.

Results from the two trials in Field 16 E., Sophia, are given in Table XXIV and Figure IV.

TABLE XXIV.—**Results of 2 Variety Trials in Field 16 E., Sophia.**

1ST RATOONS, 12.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
				Experiment A.					
MEAN YIELDS:	P.O.J. 2878	25.05	14.25	6.12	88.0	3.56	104.09	P.O.J. 2878	7.66
	D. 75/30	24.70	13.08	12.99	83.9	3.29	96.20	D. 75/30	7.46
	Mean:					3.42	100.00		
	Standard Error					—	—		
	Significant Difference, 20: 1:					—	—		
				Experiment C.					
MEAN YIELDS:	P.O.J. 2878	29.68	13.55	6.47	88.2	4.02	102.03	P.O.J. 2878	8.35
	D. 147/30	26.70	14.45	8.05	87.6	3.86	97.97	D. 147/30	7.83
	Mean:					3.94	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 7, p. 6.*)

The standard cane topped the list in both trials as a first ratoon as well as in total yield for two harvests. D. 75/30 is deserving of further consideration, but D. 147/30 has been discarded.

Sophia—Field 17 E.—First Ratoons.

The data from the trial in Field 17 E., Sophia, are given in Table XXV and Figure IV.

TABLE XXV.—**Results of a Variety Trial in Field 17 E., Sophia.**

1ST RATOONS, 12.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per acre, Tons.
MEAN YIELDS:	P.O.J. 2878	29.29	13.74	6.77	87.4	4.04	119.17	P.O.J. 2878	7.69
	D. 24/33	23.62	13.07	6.41	86.8	3.08	90.86	D. 121/33	6.60
	D. 121/33	22.17	13.49	6.47	87.1	3.04	89.68	D. 24/33	5.87
	Mean:					3.39	100.00		
	Standard Error:					—	—		
	Significant Difference, 20:1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 7, p. 7.*)

P.O.J. 2878 topped both lists. D. 121/33 has been discarded but D. 24/33 (S.C. 12/4 x Diamond 10) in view of its behaviour in other tests, is being given further consideration.

Sophia—Field 2 W.—First Ratoons.

Table XXVI and Figure IV present the data from Field 2 W., Sophia.

TABLE XXVI.—**Results of a Variety Trial in Field 2 W., Sophia.**

1ST RATOONS, 12.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	P.O.J. 2878	25.68	14.51	5.42	90.1	3.73	112.01	P.O.J. 2878	8.25
	M.P.R. 7	25.23	11.69	7.09	85.0	2.93	87.99	M.P.R. 7	6.18
	Mean:					3.33	100.00		
	Standard Error:					0.20	6.01		
	Significant Difference, 20: 1:					0.79	23.72		

(*Plant cane results reported in Sugar Bull. No. 7, p. 8.*)

P.O.J. 2878 was significantly better than M.P.R. 7 and the latter has been discarded.

Sophia—Field 4 W.—First Ratoons.

Data from the two experiments in Field 4 W., Sophia, are presented in Table XXVII and Figure V.

TABLE XXVII.—**Results of 2 Variety Trials in Field 4 W., Sophia.**

1ST RATOONS, 12.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
				Experiment A.					
MEAN YIELDS:	P.O.J. 2753	32.73	12.57	10.21	86.2	4.13	101.98	P.O.J. 2878	9.37
	P.O.J. 2878	29.15	15.61	9.87	87.7	3.98	98.27	P.O.J. 2753	8.42
	Mean:					4.05	100.00		
	Standard Error:					—	—		
	Significant Difference, 20 : 1:					—	—		
				Experiment D.					
MEAN YIELDS:	D. 39/33	38.79	13.07	10.47	83.7	5.07	126.43	D. 39/33	9.87
	P.O.J. 2878	28.94	13.79	7.90	86.9	4.01	100.00	P.O.J. 2878	8.75
	D. 7/33	32.13	11.14	18.65	76.1	3.55	88.53	D. 7/33	8.09
	D. 94/33	31.85	10.75	22.81	74.0	3.42	85.29	D. 94/33	7.69
	Mean:					4.01	100.00		
	Standard Error:					0.35	8.73		
	Significant Difference, 20: 1:					1.08	26.93		

(Plant cane results reported in Sugar Bull, No. 7, p. 10.)

In Experiment A, P.O.J. 2753 proved to be a slightly better first ratooner than P.O.J. 2878 but the latter topped the list for total yield for two crops. P.O.J. 2753 has shown considerable promise on pegassy clay at Pln. Diamond.

Of the canes in Experiment D, D. 39/33 (D. 666/18 x Diamond 10) distinguished itself and deserves further testing. D. 7/33 and D. 94/33 have been discarded.

Sophia—Field 6 W.—First Ratoons.

The results of the trial in Field 6 W., Sophia, are presented in Table XXVIII and Figure V.

TABLE XXVIII.—**Results of a Variety Trial in Field 6 W., Sophia.**

1ST RATOONS, 12.75 months.

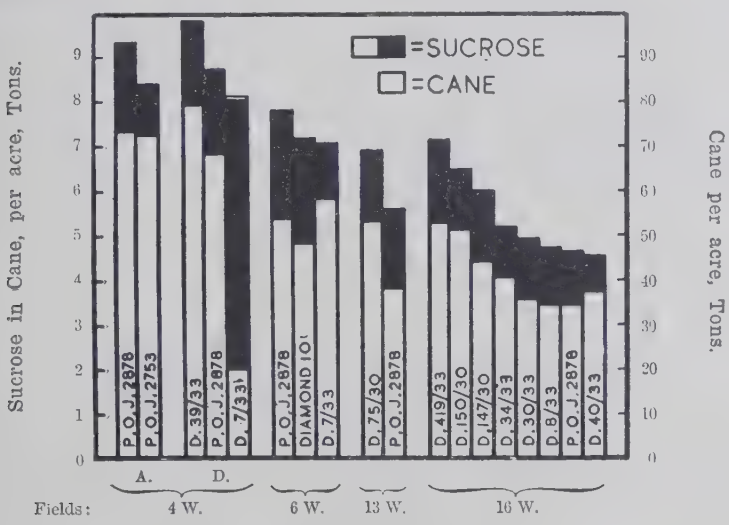
	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	P.O.J. 2878	22.31	14.69	5.45	87.7	3.31	111.82	P.O.J. 2878	7.82
	Diamond 10	19.62	14.74	4.19	89.9	2.90	97.97	Diamond 10	7.20
	D. 7/33	23.68	11.32	9.92	84.4	2.67	90.20	D. 7/33	7.10
	Mean:					2.96	100.00		
	Standard Error:					--	--		
	Significant Difference, 20: 1:					—	--		

(*Plant cane results reported in Sugar Bull, No. 7, p. 11.*)

P.O.J. 2878 outyielded Diamond 10 as a first ratoon and in total yield for two crops. D. 7/33 is a high tonnage cane but its juice is poor. It has been discarded.

FIG. V.

Sucrose and Cane Yields from Plant Canes and First Ratoons at Sophia.



Sophia—Field 13 W.—First Ratoons.

Table XXIX and Figure V present the results from Field 13 W., Sophia.

TABLE XXIX.—**Results of a Variety Trial in Field 13 W., Sophia.**

1ST RATOONS, 13.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	D. 75/30	23.69	14.08	14.48	85.2	3.34	105.03	D. 75/30	6.94
	P.O.J. 2878	19.48	15.56	5.12	89.9	3.03	95.28	P.O.J. 2878	5.61
	Mean:					3.18	100.00		
	Standard Error:					—	—		
	Significant Difference, 20 : 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 7, p. 12.*)

D. 75/30 (Badila x D. 625) outyielded P.O.J. 2878 by ten per cent. as a first ratoon and by over a ton of sucrose in total yield for two crops. Its juice, however, was not as good as that of the standard cane.

Sophia—Field 16 W.—First Ratoons.

The results of the trial in Field 16 W., Sophia, appear in Table XXX and Figure V.

TABLE XXX.—**Results of a Variety Trial in Field 16 W., Sophia.**

1ST RATOONS, 11.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	D. 419/33	21.62	14.82	5.52	90.4	3.21	188.82	D. 419/33	7.17
	D. 150/30	15.38	14.53	9.76	88.6	2.22	130.59	D. 150/30	6.51
	D. 34/33	14.46	14.32	8.16	88.6	2.10	123.53	D. 147/30	6.04
	D. 8/33	11.32	13.72	6.51	88.5	1.58	92.94	D. 34/33	5.22
	D. 40/33	10.47	14.21	6.69	87.6	1.51	88.82	D. 30/33	4.96
	P.O.J. 2878	10.72	13.27	8.51	86.0	1.42	83.53	D. 8/33	4.76
	D. 147/30	11.26	13.00	12.43	85.9	1.42	83.53	P.O.J. 2878	4.67
	D. 30/33	9.91	13.53	6.48	87.5	1.33	78.24	D. 40/33	4.58
	D. 39/33	8.57	13.64	7.77	86.4	1.17	68.82	D. 31/33	4.10
	D. 31/33	7.59	13.70	6.67	89.2	1.03	60.59	D. 39/33	3.94
	Mean					1.70	100.00		
	Standard Error					0.30	17.65		
	Significant Difference, 20: 1:					0.87	51.18		

(*Plant cane results reported in Sugar Bull. No. 7, p. 13.*)

The first ratoon tonnages were poor but the juices satisfactory; D. 419/33 (Co. 281 x Diamond 10) was significantly better than P.O.J. 2878 both as a plant and as a first ratoon. It appears to combine good tonnage with a satisfactory juice. D. 150/30, D. 34/33, D. 30/33 and D. 8/33 are being tested further.

First Ratoon Variety Trials Reaped in Berbice.

Table XXXI is a list of the first ratoon variety trials harvested in Berbice.

TABLE XXXI.—**First Ratoon Variety Trials Reaped in Berbice.**

Estate.	Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
			Previous Reaping.	Reaping.	Varieties.	Replicates.	
Port Mourant	7 A.W. A	11.75	16.IX.37	8.IX.38	2	4	Randomised Blocks
,,	7 A.W. B	11.75	16.IX.37	8.IX.38	3	4	,,
Blairmont	37 Rp.	11.00	12.IV.38	15.III.39	3	5	,,

Port Mourant—Field 7 A.W.—First Ratoons.

Table XXXII and Figure VI present the results from the two experiments in Field 7 A.W., Port Mourant.

TABLE XXXII.—**Results of 2 Variety Trials in Field 7 A.W., Port Mourant.**

1st Ratoons, 11.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
				Experiment A.					
Mean Yields:	P.O.J. 2878	49.86	15.65	5.47	90.4	7.81	105.11	P.O.J. 2878	15.14
	D. 50/30	47.89	14.67	7.08	89.4	7.05	94.89	D. 50/30	12.77
	Mean:					7.43	100.00		
	Standard Error:					—	—		
	Significant Difference, 20 : 1:					—	—		
				Experiment B.					
Mean Yields:	P.O.J. 2878	45.51	14.66	7.56	87.1	6.67	117.64	P.O.J. 2878	14.01
	D. 66/30	39.78	13.00	10.75	82.2	5.19	91.53	D. 49/30	11.23
	D. 49/30	37.67	13.67	8.75	85.8	5.15	90.83	D. 66/30	10.87
	Mean:					5.67	100.00		
	Standard Error:					0.23	4.06		
	Significant Difference, 20 : 1:					0.80	14.11		

(*Plant cane results reported in Sugar Bull, No, 7, p. 15.*)

In both trials P.O.J. 2878 outyielded all competitors. D. 49/30 was very disappointing here. D. 50/30 and D. 66/30 have been discarded.

Blairmont—Field 37 Rp.—First Ratoons.

The data from the trial in Field 37 Rp., Blairmont, are given in Table XXXIII and Figure VI.

TABLE XXXIII.—**Results of a Variety Trial in Field 37 Rp., Blairmont.**

1ST RATOONS, 11.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	Co. 213	29.20	13.48	6.50	87.7	3.93	124.37	Co. 213	10.53
	P.O.J. 2878	20.32	14.87	6.67	88.3	3.03	95.89	P.O.J. 2878	10.38
	D. 66/30	18.16	13.82	7.82	89.0	2.52	79.75	D. 66/30	9.06
	Mean:					3.16	100.00		
	Standard Error:					0.21	6.65		
	Significant Difference, 20: 1:					0.68	21.52		

(*Plant cane results reported in Sugar Bull. No. 7, p. 18.*)

Tonnages were somewhat low but Co. 213 was definitely better than P.O.J. 2878 as a first ratoon and led by a slight margin in total yield for two crops. D. 66/30 has been discarded.

FIRST RATOON VARIETY TRIALS REAPED IN EAST DEMERARA.

Diamond—Field 93 G.D.—First Ratoons.

The only first ratoon variety trial harvested in East Demerara was the one in Field 93 G.D. which had been reaped as a plant on 10.VIII.37 and was taken off as first ratoons on 10.VIII.38.

The results are shown in Table XXXIV and Figure VI.

TABLE XXXIV.—**Results of a Variety Trial in Field 93 G.D., Diamond.**

1ST RATOONS, 12.00 months.

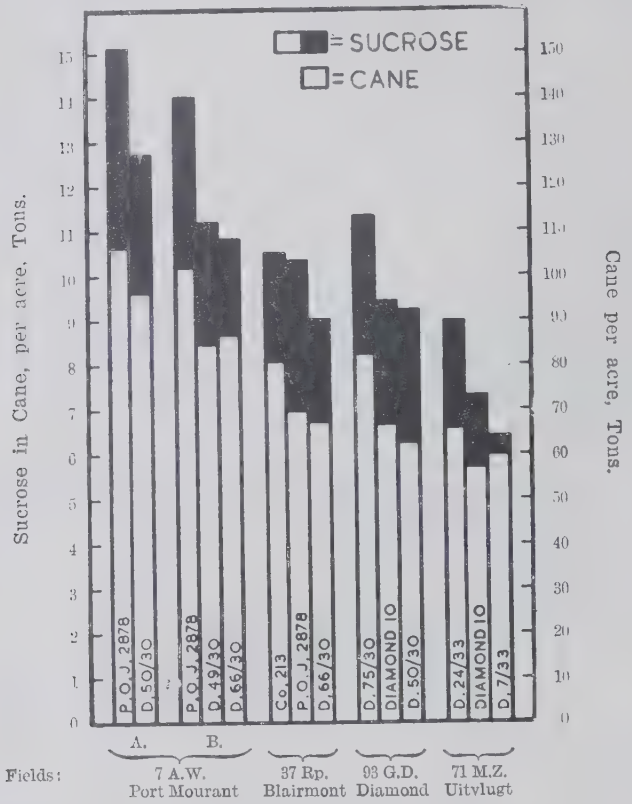
	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 2 Crops, Plants and 1st Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	D. 75/30	39.95	14.27	8.22	87.3	5.71	104.58	D. 75/30	11.38
	D. 50/30	33.00	15.90	3.77	92.3	5.34	97.80	Diamond 10	9.46
	Diamond 10	36.30	14.69	5.82	90.1	5.33	97.62	D. 50/30	9.28
	Mean:					5.46	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1					—	—		

(*Plant cane results reported in Sugar Bull. No. 7, p. 22.*)

D. 75/30 (Badila x D. 625) ratooned better than the Diamond seedling and is well ahead of it in total yield for two crops. D. 75/30 should be tried commercially in this area.

FIG. VI.

Sucrose and Cane Yields from Plant Canes and First Ratoons at PIns. Port Mourant, Blairmont, Diamond and Uitvlugt.



First Ratoon Variety Trials Reaped in West Demerara.

Uitvlugt—Field 71 M.Z.—First Ratoons.

The trial in Field 71 M.Z., Uitvlugt, harvested as a plant on 25.XI.37 and as a first ratoon on 10.XI.38, was the only first ratoon variety trial reaped in West Demerara. Its results are given in Table XXXV and Figure VI.

Table XXXV.—Results of a Variety Trial in Field 71 M.Z., Uitvlugt.

1st Ratoons, 11.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 2 Crops, Plants and 1st Ratoons. Variety.	Combined Results for 2 Crops, Plants and 1st Ratoons. Sucrose in Cane per Acre, Tons.
	D. 24/33	29.64	15.29	7.44	89.8	4.55	122.97	D. 24/33	9.00
Mean Yields:	Diamond 10	23.65	14.90	7.45	89.8	3.53	95.41	Diamond 10	7.35
	D. 7/33	23.01	13.15	17.03	80.9	3.01	81.35	D. 7/33	6.44
	Mean:					3.70	100.00		
	Standard Error:					0.14	3.79		
	Significant Difference, 20: 1:					0.46	12.47		

(*Plant cane results reported in Sugar Bull. No. 7, p. 25.*)

D. 24 33 (S.C. 12/4 x Diamond 10) gave a significantly higher first ratoon yield than Diamond 10, and is well ahead in yield for two crops. D. 7/33 has been discarded.

SUB-SECTION C.—SECOND AND THIRD RATOON VARIETY TRIALS.

Second Ratoon Variety Trials Reaped at Sophia Sugar Experiment Station.

Table XXXVI lists the second ratoon variety trials reaped at Sophia Sugar Experiment Station.

Table XXXVI.—Second Ratoon Variety Trials Reaped at Sophia Experiment Station.

Field.	Age of Canes, Months.	Date of Previous Reaping.	Date of Reaping.	Number of Varieties.	Number of Replicates.	Type of Layout.
1 East	11.25	8.III.38	15.II.39	2	5	Randomised Blocks.
2 ,,	12.75	27.IX.37	20.X.38	2	6	,,
8 ,,	11.75	17.XI.37	12.XI.38	2	7	,,
9 ,,	11.75	26.XI.37	14.XI.38	2	5	,,
10 ,,	11.50	5.III.38	21.II.39	2	7	,,
15 West	12.75	7.X.37	31.X.38	2	6	,,

Sophia—Field 1 E.—Second Ratoons.

The results of the test in Field 1 E., Sophia, appear in Table XXXVII and Figure VII.

TABLE XXXVII.—**Results of a Variety Trial in Field 1 E., Sophia.**

2ND RATOONS, 11.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	P.O.J. 2878	23.65	15.93	8.24	89.4	3.74	119.87	P.O.J. 2878	12.53
	D. 50/30	15.84	15.86	6.30	90.2	2.51	80.45	D. 50/30	9.45
	Mean:					3.12	100.00		
	Standard Error:					0.30	9.58		
	Significant Difference, 20: 1:					1.18	37.70		

(*Plant cane results reported in Sugar Bull. No. 6, p. 3.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 28.*)

D. 50/30 has proved no match for P.O.J. 2878 and will, in consequence, be discarded.

Sophia—Field 2 E.—Second Ratoons.

Table XXXVIII and Figure VII present the data from the trial in Field 2 E., Sophia.

TABLE XXXVIII.—**Results of a Variety Trial in Field 2 E., Sophia.**

2ND RATOONS, 12.75 months.

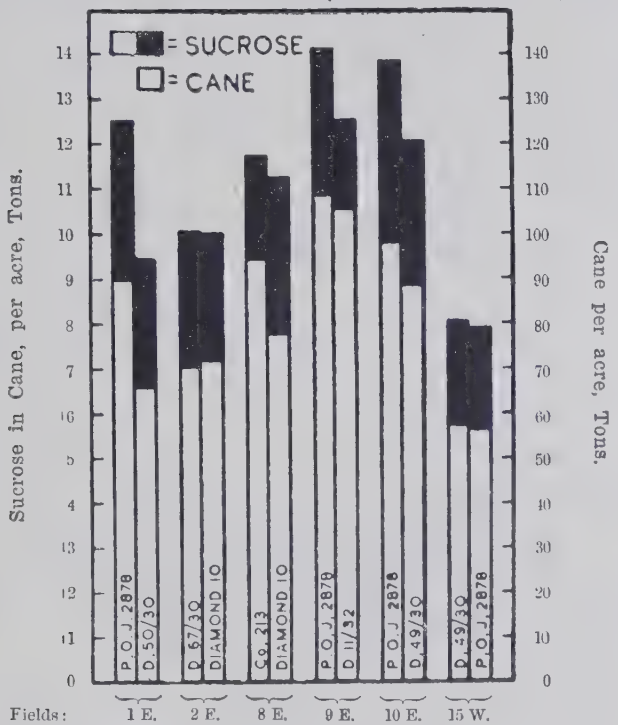
	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	Diamnod 10	19.01	15.27	4.84	90.7	2.90	101.75	D. 67/30	10.09
	D. 67/30	18.37	15.19	5.27	90.4	2.81	98.60	Diamond 10	10.03
	Mean:					2.85	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 5.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 30.*)

Diamond 10, used as the standard in this experiment, was slightly better than D. 67/30 (Diamond 10 x S.C. 12/4) as a second ratoon but there was nothing to choose between the two canes in total yield for three crops.

FIG. VII.

Sucrose and Cane Yields from Plant Canes, First and Second Ratoons at Sophia.



Sophia—Field 8 E.—Second Ratoons.

Data from the experiment in Field 8 E., Sophia, are given in Table XXXIX and Figure VII.

TABLE XXXIX.—**Results of a Variety Trial in Field 8 E., Sophia.**

2ND RATOONS, 11.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	Co. 213	25.93	13.71	8.51	86.6	3.54	110.62	Co. 213	11.78
	Diamond 10	18.43	15.47	6.53	90.7	2.86	89.37	Diamond 10	11.29
	Mean:					3.20	100.00		
	Standard Error:					—	—		
	Significant Difference, 20 : 1:					—	—		

(Plant cane results reported in Sugar Bull. No. 6, p. 7.)
(First ratoon results reported in Sugar Bull. No. 7, p. 32.)

Co. 213 gave a much better second ratoon yield than Diamond 10, the standard used in this test, and has also surpassed it in total yield for three crops.

Sophia—Field 9 E.—Second Ratoons.

The results of the test in Field 9 E., Sophia, are presented in Table XL. and Figure VII.

TABLE XL.—**Results of a Variety Trial in Field 9 E., Sophia.**

2ND RATOONS, 11.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	P.O.J. 2878	28.75	14.09	4.61	90.3	4.05	103.58	P.O.J. 2878	14.16
	D. 11/32	27.86	13.59	7.90	88.4	3.77	96.42	D. 11/32	12.57
	Mean:					3.91	100.00		
	Standard Error:					—	—		
	Significant Difference, 20; 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 9.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 33.*)

D. 11/32 has shown up poorly against P.O.J. 2878 and will be discarded.

Sophia—Field 10 E.—Second Ratoons.

Table XLI and Figure VII present the data from the trial in Field 10 E., Sophia.

TABLE XLI.—**Results of a Variety Trial in Field 10 E., Sophia.**

2ND RATOONS, 11.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	D. 49/30	24.83	16.34	3.53	92.2	4.07	103.56	P.O.J. 2878	13.89
	P.O.J. 2878	24.83	15.30	4.97	90.1	3.79	96.44	D. 49/30	12.10
	Mean:					3.93	100.00		
	Standard Error:					—	—		
	Significant Difference, 20:1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 11.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 34.*)

D. 49/30 (D. 625) outyielded P.O.J. 2878 as a second ratoon but the Javan cane is well above in total output for three harvests.

Sophia—Field 15 W.—Second Ratoons.

The results of the experiment in Field 15 W., Sophia, appear in Table XLII and Figure VII.

TABLE XLII.—**Results of a Variety Trial in Field 15 W., Sophia.**

2ND RATOONS, 12.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per acre, Tons.
MEAN YIELDS:	D. 49/30	15.85	14.49	4.18	91.1	2.30	105.02	D. 49/30	8.10
	P.O.J. 2878	14.74	14.10	5.03	88.9	2.08	94.98	P.O.J. 2878	7.93
	Mean:					2.19	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 14.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 36.*)

D. 49/30 led P.O.J. 2878 by a slight margin both as a second ratoon and in total yield for three crops. D. 49/30 yields a juice of high quality.

SECOND RATOON VARIETY TRIALS REAPED IN BERBICE.

Details as to harvest dates, etc., of the two second ratoon trials reaped in Berbice are given in Table XLIII.

TABLE XLIII.—**Second Ratoon Variety Trials Reaped in Berbice.**

Estate.	Field.	Age of Canes, Months.	Date of		Number of		Type of Layout.
			Previous Reaping.	Reaping.	Varieties.	Replicates.	
Albion	49 A.	11.25	25.III.38	2.III.39	3	1	Unreplicated
Providence	14 E.W.	13.50	6.X.37	23.XI.38	5	5	Latin Square

Albion—Field 49 A.—Second Ratoons.

Results of the unreplicated test in Field 49 A., Albion, are given in Table XLIV and Figure VIII.

TABLE XLIV.—**Results of a Variety Trial in Field 49 A., Albion.**

2ND RATOONS, 11.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	P.O.J. 2878	27.36	15.42	8.36	89.2	4.22	114.67	P.O.J. 2878	15.33
	D. 66/30	26.03	14.50	6.92	90.8	3.77	102.45	D. 75/30	14.37
	D. 75/30	24.13	12.69	10.90	84.9	3.06	83.15	D. 66/30	12.28
	Mean:					3.68	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 15.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 37.*)

P.O.J. 2878 was well above the other two canes harvested. D. 66/30 will be discarded but D. 75/30 has shown considerable promise in other areas.

Providence—Field 14 E.W.—Second Ratoons.

Data from the experiment in Field 14 E.W., Providence, appear in Table XLV and Figure VIII.

TABLE XLV.—**Results of a Variety Trial in Field 14 E.W., Providence (Berbice.)**

2ND RATOONS, 13.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per acre, Tons.
MEAN YIELDS:	Co. 213	38.33	13.78	9.99	85.9	5.28	119.46	P.O.J. 2878	17.80
	P.O.J. 2878	29.64	15.18	7.71	88.8	4.52	102.26	Diamond 10	16.66
	D. 49/30	28.87	14.93	6.48	90.2	4.29	97.06	D. 49/30	14.15
	Diamond 10	26.52	15.84	6.72	90.7	4.19	94.80	D. 66/30	14.08
	D. 66/30	20.28	14.56	6.32	90.5	3.82	86.43	°Co. 213	10.46
	Mean:					4.42	100.00		
	Standard Error:					0.27	6.11		
	Significant Difference, 20:1:					0.83	18.78		

°Plants and 2nd Ratoons only.

(*Plant cane results reported in Sugar Bull. No. 6, p. 17.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 39.*)

Co. 213, which headed the second ratoon list, was severely damaged by rats as plants and again so damaged as first ratoons that its plots were not weighed. Its outstanding performance as a second ratoon is of much interest and indicates what might have happened in the two previous harvests if the rats had not selected this particular variety for their attentions.

SECOND RATOON VARIETY TRIALS REAPED IN EAST DEMERARA.

Table XLVI lists the second ratoon variety trials reaped in East Demerara.

TABLE XLVI.—**Second Ratoon Variety Trials Reaped in East Demerara.**

Estate.	Field.	Age of Canes, Months.	Date of Previous Reaping.	Date of Reaping.	Number of Varieties.	Number of Replicates.	Type of Layout.
Cane Grove	50 S.M.	12.25	22.IV.38	27.IV.39	2	5	Randomised Blocks
Lusignan	76 A.	12.25	21.VII.37	26.VII.38	4	7	,,
Ogle	109 E.	11.00	23.IX.37	24.VIII.38	3	7	,,
Diamond	97 G.D.	11.00	16.XI.37	14.X.38	5	7	,,

Cane Grove—Field 50 S.M.—Second Ratoons.

The results of the trial in Field 50 S.M., Cane Grove, appear in Table XLVII and Figure VIII.

TABLE XLVII.—**Results of a Variety Trial in Field 50 S.M., Cane Grove.**

2ND RATOONS, 12.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS :	P.O.J. 2878	20.06	13.53	10.22	88.1	2.72	109.68	P.O.J. 2878	10.06
	D. 147/30	17.29	13.00	10.48	88.1	2.25	90.73	D. 147/30	9.35
	Mean:					2.48	100.00		
	Standard Error:					...	...		
	Significant Difference, 20: 1:					...	...		

(*Plant cane results reported in Sugar Bull. No. 6, p. 18.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 40.*)

D. 147/30 proved no match for P.O.J. 2878 and will be discarded.

Lusignan—Field 76 A.—Second Ratoons.

Table XLVIII and Figure VIII present the data from the test in Field 76 A., Lusignan.

TABLE XLVIII.—**Results of a Variety Trial in Field 76 A., Lusignan.**

2ND RATOONS, 12.25 months.

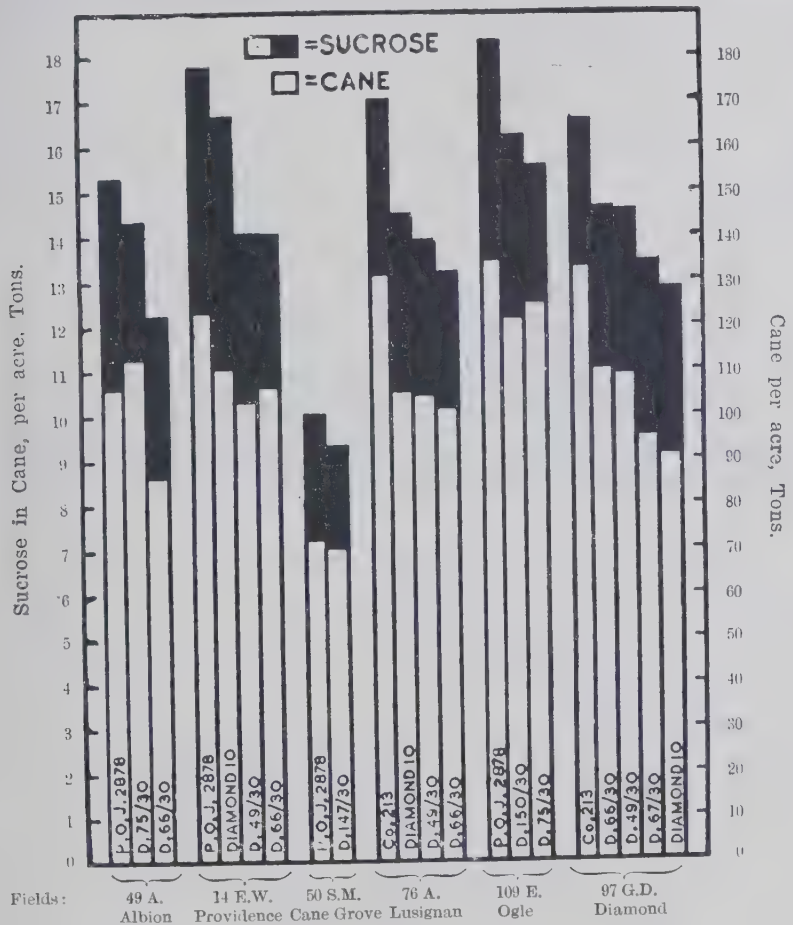
	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS :	Co. 213	32.81	13.82	4.57	87.4	4.53	123.77	Co. 213	17.08
	D. 49/30	25.76	13.38	3.83	89.5	3.45	94.26	Diamond 10	14.53
	Diamond 10	24.53	13.89	4.78	89.8	3.41	93.17	D. 49/30	13.95
	D. 66/30	23.76	13.75	4.18	90.3	3.25	88.80	D. 66/30	13.21
	Mean:					3.66	100.00		
	Standard Error					0.17	4.64		
	Significant Difference, 20: 1:					0.51	13.93		

(*Plant cane results reported in Sugar Bull. No. 6. p. 21.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 42.*)

Co. 213 surpassed all other varieties as a second ratoon by a significant margin and was well ahead in total yield for three crops. D. 49/30 has frequently done better than this but D. 66/30 will be discarded.

FIG. VIII.

Sucrose and Cane Yields from Plant Canes, First and Second Ratoons at Plns. Albion, Providence (Berbice), Cane Grove, Lusignan, Ogle and Diamond.



Ogle—Field 109 E.—Second Ratoons.

The results of the trial in Field 109 E., Ogle, are given in Table XLIX and Figure VIII.

TABLE XLIX.—Results of a Variety Trial in Field 109 E., Ogle.

2ND RATOONS, 11.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre.		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane, per acre. Tons.
MEAN YIELDS:	P.O.J. 2878	37.25	13.78	5.36	87.4	5.05	103.91	P.O.J. 2878	18.37
	D. 75/30	36.25	13.23	7.05	87.3	4.80	98.77	D. 150/30	16.27
	D. 150/30	35.79	13.26	7.87	85.9	4.74	97.53	D. 75/30	15.59
	Mean:					4.86	100.00		
	Standard Error:					—	—		
	Significant Difference, 20. 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 24.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 45.*)

Yields were good and P.O.J. 2878 surpassed all competitors both as second ratoons and in total yield for three crops.

Diamond—Field 97 G.D.—Second Ratoons.

The data from the experiment in Field 97 G.D., Diamond, will be found in Table L and Figure VIII.

TABLE L.—**Results of a Variety Trial in Field 97 G.D., Diamond.**

2ND RATOONS, 11.00 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre, Tons.	Sucrose in Cane per Acre, % Mean.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Variety.	Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons. Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	Co. 213	37.76	13.73	9.80	86.9	5.17	122.51	Co. 213	16.60
	D. 49/30	31.68	14.21	6.93	88.2	4.49	106.40	D.66/30	14.67
	D. 66/30	26.59	14.69	6.80	89.5	3.91	92.65	D. 49/30	14.60
	Diamond 10	24.82	15.20	8.17	88.7	3.77	89.34	D. 67/30	13.46
	D. 67/30	24.05	15.64	5.77	90.8	3.75	88.86	Diamond 10	12.85
	Mean:					4.22	100.00		
	Standard Error:					0.20	4.74		
	Significant Difference, 20: 1:					0.58	13.74		

(*Plant cane results reported in Sugar Bull. No. 6, p. 25.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 46.*)

Yields were satisfactory, with Co. 213 outstanding. The commercial trial of this cane in the area should not be delayed.

SECOND RATOON VARIETY TRIALS REAPED IN WEST DEMERARA.

Table LI lists the second ratoon variety trials reaped in West Demerara.

TABLE LI.—**Second Ratoon Variety Trials Reaped in West Demerara.**

Estate.	Field.	Age of Canes. Months.	Date of Previous Reaping.	Date of Reaping.	Number of Varieties.	Number of Replicates.	Type of Layout.
Wales	39 V. A	11.50	9.III.38	24.II.39	2	5	Randomised Blocks
,,	39 V. B	11.50	9.III.38	24.II.39	2	5	,,
Leonora	16 Gv.	12.50	1.X.37	18.X.38	2	7	,,
,,	53 Sv. A	12.25	21.IV.38	25.IV.39	3	5	,,
,,	53 Sv. B	12.25	21.IV.38	25.IV.39	3	5	,,
Uitvlugt	46 deW.	11.75	1.III.38	22.II.39	3	7	,,

Wales—Field 39 V.—Second Ratoons.

The two experiments in Field 39 V., Wales, yielded the results shown in Table LII and Figure IX.

TABLE LII.—**Results of 2 Variety Trials in Field 39 V., Wales.**

2ND RATOONS, 11.50 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
				Experiment A.					
MEAN YIELDS:	P.O.J. 2878	9.82	15.26	7.36	92.0	1.49	126.27	D. 66/30	5.91
	D. 66/30	5.83	14.55	7.08	91.7	0.87	73.73	P.O.J. 2878	5.85
	Mean:					1.18	100.00		
	Standard Error:					0.15	12.71		
	Significant Difference, 20: 1:					0.59	50.00		
				Experiment B.					
MEAN YIELDS:	Co. 213	19.65	14.83	7.20	88.4	2.91	109.40	Co. 213	9.53
	P.O.J. 2878	14.73	16.32	7.53	92.7	2.41	90.60	P.O.J. 2878	9.10
	Mean:					2.66	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(Plant cane results reported in Sugar Bull. No 6, p. 26.)
(First ratoon results reported in Sugar Bull. No. 7, p. 47.)

Yields were low in both trials, especially in experiment A. D. 66/30 has not proved generally better than P.O.J. 2878 and it will be discarded. Co. 213, on the other hand, has done well in many trials and it should be investigated on a commercial scale.

Leonora—Field 16 Gv.—Second Ratoons.

Table LIII and Figure IX present the results of the trial in Field 16 Gv., Leonora.

TABLE LIII.—**Results of a Variety Trial in Field 16 Gv., Leonora.**

2ND RATOONS, 12.50 months.

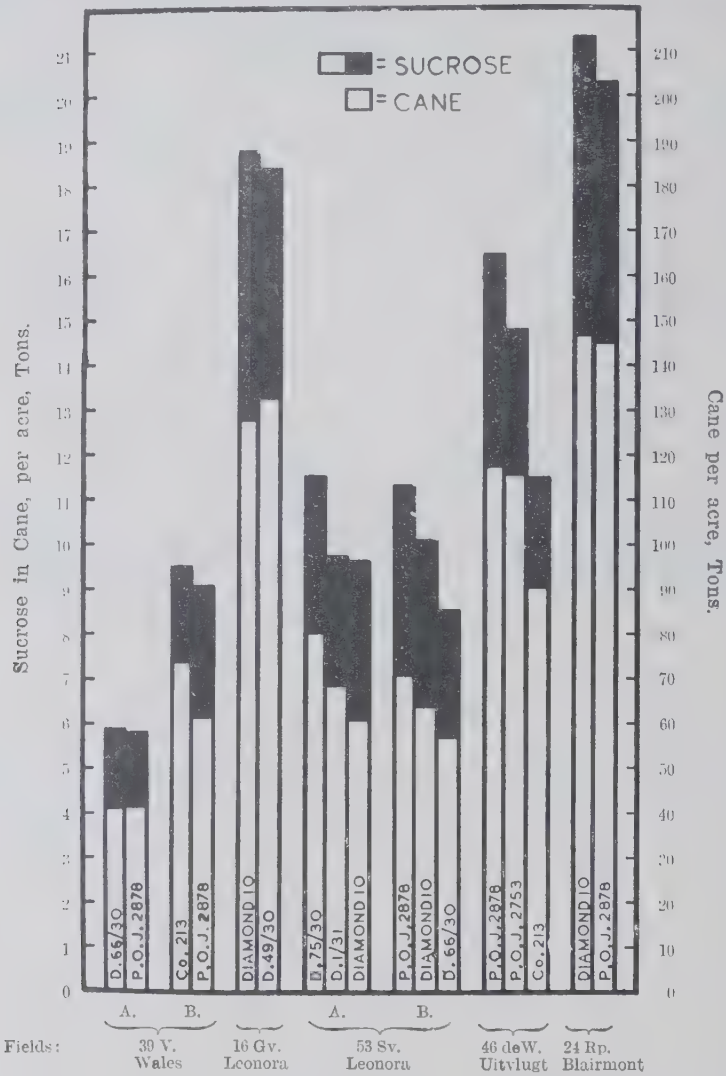
	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	Diamond 10	40.15	15.18	5.94	89.8	6.10	103.92	Diamond 10	18.83
	D. 49/30	40.53	13.98	6.47	86.7	5.65	96.25	D. 49/30	18.44
	Mean:					5.87	100 00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 6, p. 27.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 48.*)

Yields were heavy and juices satisfactory. Diamond 10, the standard cane for this trial, has outyielded D. 49/30 by 0.4 Ton sucrose over three crops.

FIG. IX.

Sucrose and Cane Yields from Plant Canes, First and Second Ratoons at Plns. Wales, Leonora and Uitvlugt, and from Plant Canes to Third Ratoons at Pln. Blairmont.



Leonora—Field 53 Sv.—Second Ratoons.

The results of the two tests in Field 53 Sv., Leonora, are given in Table LIV and Figure IX.

TABLE LIV.—**Results of 2 Variety Trials in Field 53 Sv., Leonora.**

2ND RATOONS, 12.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre.		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
				Experiment A.					
MEAN YIELDS:	D. 1/31	16.05	14.03	6.81	89.1	2.26	111.33	D. 75/30	11.56
	D. 75/30	13.49	14.70	8.49	87.6	1.99	98.03	D. 1/31	9.77
	Diamond 10	12.89	14.29	6.13	89.8	1.84	90.64	Diamond 10	9.66
	Mean:					2.03	100.00		
	Standard Error:					...	...		
	Significant Difference, 20 : 1:					...	...		
				Experiment B.					
MEAN YIELDS:	P.O.J. 2878	18.36	14.98	5.83	90.7	2.75	121.15	P.O.J. 2878	11.34
	Diamond 10	15.03	15.00	6.31	90.5	2.24	98.68	Diamond 10	10.11
	D. 66/30	12.12	14.92	4.32	92.0	1.81	79.74	D. 66/30	8.56
	Mean:					2.27	100.00		
	Standard Error:					0.17	7.49		
	Significant Difference, 20: 1:					0.55	24.23		

(*Plant cane results reported in Sugar Bull. No. 6, p. 29.*)
(*First ratoon results reported in Sugar Bull, No. 7, p. 49.*)

Yields were low but juices satisfactory. D. 75/50 (Badila x D. 625) which heads the three-crop yields, in Experiment A, is being tried commercially on this estate. D. 1/31 is being tested further. P.O.J. 2878, in Experiment B, has again shown its superiority to Diamond 10. D. 66/30 has been discarded.

Uitvlugt—Field 46 de W.—Second Ratoons.

Table LV and Figure IX present the results of the trial in Field 46 de W., Uitvlugt.

TABLE LV.—**Results of a Variety Trial in Field 46 de W., Uitvlugt.**

2ND RATOONS, 11.75 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 3 Crops, Plants, 1st and 2nd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	P.O.J. 2878	31.19	15.52	6.88	90.6	4.81	112.12	P.O.J. 2878	16.51
	P.O.J. 2753	33.25	13.70	7.87	88.7	4.56	106.29	P.O.J. 2753	14.84
	Co. 213	26.04	13.51	7.44	87.3	3.51	81.82	Co. 213	11.59
	Mean:					4.29	100.00		
	Standard Error:					0.17	3.95		
	Significant Difference, 20: 1:					0.52	12.09		

(*Plant cane results reported in Sugar Bull. No. 6, p. 31.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 51.*)

Yields were quite satisfactory for this soil type and P.O.J. 2878 outyielded all competitors. Co. 213 has been disappointing throughout this trial.

THIRD RATOON VARIETY TRIALS REAPED IN BERBICE.

Blairmont—Field 24 Rp.—Third Ratoons.

One trial was reaped as third ratoons in Field 24 Rp., Blairmont, on 21.IX.38, the second ratoons having been harvested on 10.XI.37. The results appear in Table LVI and Figure IX.

TABLE LVI.—**Results of a Variety Trial in Field 24 Rp., Blairmont.**

3RD RATOONS, 10.25 months.

	Variety.	Cane per Acre, Tons.	Sucrose in Cane, %.	Glucose Ratio.	Purity.	Sucrose in Cane per Acre,		Combined Results for 4 Crops, Plants, 1st, 2nd and 3rd Ratoons.	
						Tons.	% Mean.	Variety.	Sucrose in Cane per Acre, Tons.
MEAN YIELDS:	Diamond 10	30.03	15.31	6.74	89.2	4.60	100.22	Diamond 10	21.33
	P.O.J. 2878	28.98	15.83	6.43	89.7	4.59	100.00	P.O.J. 2878	20.33
	Mean:					4.59	100.00		
	Standard Error:					—	—		
	Significant Difference, 20: 1:					—	—		

(*Plant cane results reported in Sugar Bull. No. 5, p. 19.*)
(*First ratoon results reported in Sugar Bull. No. 6, p. 40.*)
(*Second ratoon results reported in Sugar Bull. No. 7, p. 59.*)

In this trial Diamond 10 proved superior to P.O.J. 2878; the reverse is the more frequent order.

SUB-SECTION D.—DISCUSSION AND SUMMARY OF RESULTS.

Table LVII summarises, for all experiments, the relative status of the varieties which have been reaped as plant canes, first ratoons and second ratoons.

TABLE LVII.—**Mean Sucrose Yields from Three Crops.**

Variety.	Mean Sucrose, Tons per acre (Corrected Values).				Total Yield, P.O.J. 2878 =100.0
	Plants.	First Ratoons.	Second Ratoons.	Total.	
Co. 213	**4.50**	**4.12**	**4.14**	**12.76**	**101.11**
P.O.J. 2878	**4.98**	**4.05**	**3.59**	**12.62**	**100.00**
D. 1/31	*4.47*	*3.44*	4.69	12.60	99.84
D. 67/30	*5.09*	*3.59*	3.79	12.47	98.81
D. 75/30	**5.40**	**3.70**	*3.22*	*12.32*	*97.62*
Diamond 10	**4.73**	**3.75**	**3.81**	**12.29**	**97.39**
D. 150/30	**4.86**	*4.05*	3.38	12.29	97.39
D. 49/30	**4.42**	**3.88**	**3.94**	**12.24**	**96.99**
P.O.J. 2753	*4.04*	*4.05*	4.08	12.17	96.43
D. 11/32	4.12	4.12	3.34	11.58	91.76
D. 50/30	**4.23**	**3.60**	3.61	11.44	90.65
D. 66/30	**4.37**	**3.57**	**3.17**	**11.11**	**88.03**
D. 147/30	**4.86**	*3.22*	2.97	11.05	87.56

NOTE:—**Heavy type indicates means of six or more tests;**

Italics indicate means of three to five tests;

Ordinary type indicates one test or mean of two.

Co. 213 has been well tested at numerous sites spread over the sugar belt. It usually gives heavier tonnages of cane than P.O.J. 2878 but its juice is not as good as that of the standard cane. Planters are advised to try it on a commercial scale with a view to assessing its superiority or otherwise to P.O.J. 2878 in regard to seed supply, germination, weed control, ratooning, harvesting, loading, milling, etc., factors on which the present tests can give relatively little information. It should be noticed that the yield of Co. 213 falls off as ratoons much less rapidly than does that of P.O.J. 2878, since the second ratoon yield is 92 per cent. of the plant canes in the case of Co. 213, as compared with 72 per cent. in the case of P.O.J. 2878. This possibly indicates that in a long crop cycle (four to six harvests) Co. 213 will top P.O.J. 2878.

Only one second ratoon trial of D. 1/31 (S.C. 12/4 x D. 625) has been reaped and in view of the somewhat mediocre plant cane and first ratoon results from three trials, little can be said of this cane until more data are available.

Both D. 67/30 (Diamond 10 x S.C. 12/4) and D. 75/30 (Badila x D. 625) are high yielders as plants but fall off somewhat in ratoons. The latter has been adequately tested as a plant and first ratoon and the second ratoon figure is from three trials so that considerable reliance can be placed on the order of merit in regard to P.O.J. 2878 and Diamond 10. Commercial tests of D. 75/30 have been advised, and they are being carried out on certain estates. It is desirable that other estates give this cane a trial. D. 67/30 is being tested further.

D. 150/30 (D. 625 x S.C. 12/4) continues to show some promise but more ratoon data are required.

D. 49/30 and D. 66/30 have now been adequately tested. The former will not generally displace either P.O.J. 2878 or Diamond 10 but its average yield is practically the same as that of the Diamond seedling and it is likely to prove useful in certain areas which it suits. Thus it has given promising results, under commercial conditions, at Lusignan, Providence (Demerara) and de Kinderen. The further extension of D. 66/30 is not advised.

P.O.J. 2753 gives some indication of being useful on pegassy areas and will be tested further; a good sign is that its first and second ratoon yields are as good as that of its plant canes.

D. 11/32, D. 50/30, D. 66/30 and D. 147/30 will be discarded.

Table LVIII summarises the results from all experiments with varieties reaped as plant canes and first ratoons only.

TABLE LVIII.—**Mean Sucrose Yields from Two Crops.**

Variety.	Mean Sucrose, Tons per acre (Corrected Values).			Total Yield, P.O.J. 2878 =100.0
	Plants.	First Ratoons.	Total.	
D. 419/33	6.45	9.16	15.61	172.87
D. 34/33	3.80	5.99	9.79	108.42
D. 8/33	4.87	4.51	9.38	103.88
D. 30/33	5.56	3.79	9.35	103.54
D. 39/33	*4.40*	4.66	9.06	100.33
P.O.J. 2878	**4.98**	**4.05**	**9.03**	**100.00**
D. 456/33	**4.86**	4.01	8.87	98.23
D. 24/33	*4.91*	3.93	8.84	97.90
Diamond 10	**4.73**	**3.75**	**8.48**	**93.91**
D. 450/33	*4.53*	3.93	8.46	93.69
D. 5/32	5.18	2.83	8.01	88.70
D. 40/33	*3.69*	4.31	8.00	88.59
D. 7/33	*4.59*	*3.36*	*7.95*	*88.04*
D. 94/33	4.49	3.45	7.94	87.93
D. 121/33	4.60	3.05	7.65	84.72
M.P.R. 7	**3.83**	3.37	7.20	79.73
D. 31/33	*4.25*	2.94	7.19	79.62

NOTE :—**Heavy type indicates means of six or more tests ;**
Italics indicate means of three to five tests ;
Ordinary type indicates one test or mean of two.

There are, in this table, several canes, whose future behaviour will be watched with great interest, *viz.* :—

D. 419/33 (Co. 281 x Diamond 10) and D. 34/33 (D. 666/18 x Diamond 10) which have each been tested twice as a plant and once as a first ratoon;

D. 8/33 (D. 53/27 x Diamond 10) and D. 30/33 (S.C. 12/4 x Diamond 10) which have each been tested once as a plant and once as first ratoons;

D. 39/33 (D. 666/18 x Diamond 10) which has been tested five times as a plant and twice as a first ratoon and appears to be a good ratooner;

D. 456/33 (P.O.J. 2878 x Diamond 10) which has been tested six times as a plant and once as a first ratoon and has shown much promise in commercial plantings on certain estates;

D. 24/33 (S.C. 12/4 x Diamond 10) which has been tested thrice as a plant and twice as a first ratoon.

D. 450/33 (P.O.J. 2878 x Diamond 10) will be tested further as a ratoon but the remaining canes in the list will be discarded.

The canes listed in Table LIX have only been tested as plants.

TABLE LIX.—**Mean Sucrose Yields from Plant Canes.**

Variety.	Mean Sucrose, Tons per acre (Corrected Values). Plants.	Yield, P.O.J. 2878=100.0
D. 552/33	5.96	119.68
D. 166/34	5.77	115.86
D. 51/33	5.39	108.23
D. 119/34	5.26	105.62
D. 63/33	5.19	104.22
D. 109/34	5.14	103.21
D. 112/34	5.05	101.41
P.O.J. 2878	**4.98**	**100.00**
D. 221/33	4.74	95.18
Diamond 10	**4.73**	**94.98**
D. 116/34	4.68	93.98
D. 20/33	4.66	93.57
D. 44/33	*4.53*	*90.96*
D. 113/34	4.51	90.56
D. 295/33	4.46	89.56
D. 250/33	4.42	88.75
D. 111/34	4.42	88.75
D. 16/33	4.41	88.55
D. 85/33	*4.17*	*83.73*
D. 83/33	*4.14*	*83.13*
D. 189/33	4.09	82.13
D. 110/34	4.08	81.93
D. 58/33	3.95	79.32
D. 100/29	3.87	77.71
D. 49/33	3.15	63.25

NOTE:—**Heavy type indicates means of six or more tests;**
Italics indicate means of three to five tests;
Ordinary type indicates one test or mean of two.

Of the canes above P.O.J. 2878 and Diamond 10, only D. 166/34 has been harvested more than once. This P.O.J. 2878 x Sorghum hybrid has been so outstanding in the multiplication nurseries that it has already been distributed to the estates and they are rapidly extending their nurseries of it. In the two plant cane tests reaped to date it was compared with Diamond 10. Its average performance, in this respect, will be seen in Table LX.

TABLE LX.

Average Results of D. 166/34 and Diamond 10 from Two Tests.

Variety.	Cane, Tons/acre.	Sucrose, % Cane.	Glucose Ratio.	Juice Purity.	Sucrose, Tons/acre.
D. 166/34	48.67	14.62	7.22	88.0	7.11
Diamond 10	39.94	14.60	6.53	90.1	5.82

All of the varieties appearing in Table LIX below D. 113/34 will be discarded. The others will be tested further.

Some cane varieties yield high tonnages of mediocre cane, others lower tonnages of high quality cane; a few combine good tonnages with good juices. The order in which the varieties appear in Tables LVII, LVIII and LIX is dependent on both cane yield and sucrose content. Table LXI is inserted to give planters an indication of the quality of the average plant cane yielded by the varieties listed.

TABLE LXI.

Quality of the Plant Cane Yielded by Certain Varieties.

Variety.	Sucrose in Cane, %.	Glucose Ratio.	Juice Purity.
P.O.J. 2878	14.05	7.10	87.3
P.O.J. 2753	12.52	6.78	86.2
Co. 213	12.47	7.29	86.3
D. 49/30	13.45	6.24	88.0
D. 67/30	14.28	6.80	88.1
D. 75/30	12.42	13.30	83.4
D. 8/33	14.24	6.67	87.1
D. 24/33	14.52	6.78	88.3
D. 30/33	14.42	4.73	90.4
D. 34/33	13.21	9.60	86.2
D. 39/33	13.13	7.59	85.8
D. 51/33	13.46	10.98	85.0
D. 63/33	12.76	7.69	85.2
D. 419/33	13.70	7.05	87.1
D. 450/33	13.98	5.43	88.5
D. 456/33	14.23	6.90	87.1
D. 552/33	13.27	8.01	85.9
D. 109/34	13.85	6.59	86.0
D. 112/34	13.65	7.33	85.7
D. 119/34	13.35	8.36	87.1
D. 166/34	14.28	7.68	85.9

MANURIAL TRIALS.

The results of the twenty-four manurial trials reaped during the period under review, are recorded under six sub-sections, *viz.* :—

A—Nitrogenous manures

B—Phosphatic manures

C—Potassic manures

D—Liming materials

E—Manganese Ore

F—Discussion and summary.

Certain experiments, involving manures which contained both nitrogen and phosphate, are treated, for convenience, under sub-section A (A7—A12 and A16—A20), and in this respect there is some overlapping between sub-sections A and B.

Several trials, *e.g.*, A 1 to A 4, were of a complex nature, involving graded dressings of nitrogen, phosphate and potash. The response to each element is discussed under the appropriate sub-section.

SUB-SECTION A.—NITROGENOUS MANURES.

(A 1) Sulphate of Ammonia on Flood-Fallowed Frontland (First Ratoons, P.O.J. 2878).

Field 20 R., Port Mourant.

The results of this trial appear in Table LXII and Figure X where it will be seen that the nitrogenous applications had a definite beneficial effect on the yield of cane and an adverse one on the glucose ratio.

Table LXII.

Effect of Sulphate of Ammonia on First Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Port Mourant.

S/A., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
2	33.36	15.97	5.251	89.0	6.05
4	37.76	15.66	5.943	87.9	7.17
6	41.93	15.60	6.600	88.2	6.79
Means	37.68	15.74	5.931	88.4	6.67
S.E. of means	1.79	...	0.282	...	0.24
Significant Differences (20 : 1)	5.39	...	0.848	...	0.72

'Z' value obtained for effect of nitrogen on tonnage.....=1.2162
" " " " " " " " glucose ratio.....=0.7938
" " required for P=0.05.....=0.7568
" " " " P=0.01.....=1.0807

In this test, the increment due to the 4 cwt. application was not quite sufficient for this dose to be significantly better than the 2 cwt. application, but previous work on this estate and elsewhere suggests that 4 cwt. is an economically sound dose. The 6 cwt. application gave a relatively high, but statistically insignificant, increment over the yield from 4 cwt. Such high differences in favour of 6 cwt. over 4 have not occurred often and it is doubtful if 6 cwt. will generally prove to be 'paying.'

Canes from the 4 and 6 cwt. plots had a definitely higher glucose ratio than those from the 2 cwt. plots, but did not differ significantly between themselves.

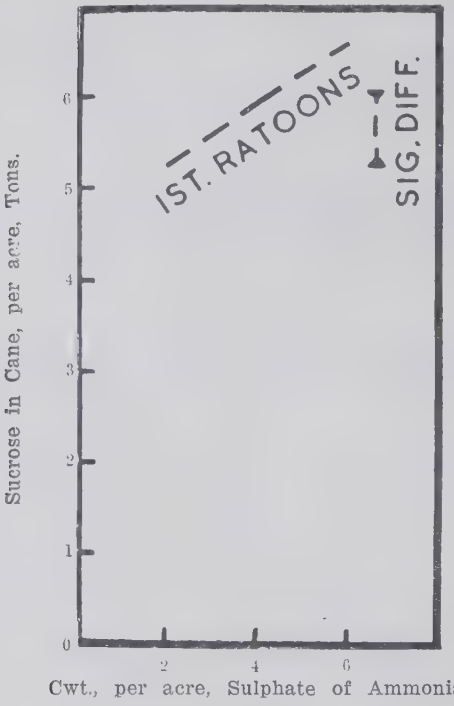


FIG. X.

Effect of Sulphate of Ammonia on Flood-fallowed Frontland at Port Mourant (P.O.J. 2878; First Ratoons).

(A 2) Residual Effect of Sulphate of Ammonia on Flood-Fallowed Frontland (First Ratoons, P.O.J. 2878).

Field 23 R., Port Mourant.

(*Plant cane results reported in Sugar Bull. No. 7, pp. 69-70.*)

This site had received dressings of 2, 4 and 6 cwt. sulphate of ammonia per acre as plants (see *Sugar Bull.* No. 7, pp. 69—70) and it had been intended to repeat the treatments on the first ratoons. Through an error, however, the estate applied 4 cwt. per acre of sulphate of ammonia over the entire trial area and it was then decided to weigh the plots as first ratoons to see if there was any residual effect from the nitrogenous, phosphatic and potassic applications to the plant canes. It will be seen from Table LXIII that there was no definite residual effect from the dressings of sulphate of ammonia.

Table LXIII.

Residual Effect of Sulphate of Ammonia on First Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Port Mourant.

S/A., Cwt./acre	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
2	34.90	14.39	...	89.2	5.68
4	35.18	13.93	...	89.1	5.48
6	36.44	14.59	...	90.7	5.71
Means	35.51	14.30	5.078	89.7	5.62
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...

(A 3—A 4) Sulphate of Ammonia on Flood-Fallowed Frontland (Second Ratoons, P.O.J. 2878).

Fields 81 R.H., Rose Hall; and 26 Rp., Blairmont.

(Plant cane results reported in Sugar Bull. No. 6, pp. 57-61.)
(First ratoon results reported in Sugar Bull. No. 7, pp. 70-72.)

The results of the two tests are shown in Table LXIV and Figures XI and XII.

Table LXIV.

Effect of Sulphate of Ammonia on Second Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland.

S/A., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln.	*Rose Hall,*	*Field 81*	*Rose Hall.*	
2	31.90	14.43	4.603	88.4	8.70
4	39.20	14.57	5.711	86.8	9.34
6	40.62	13.62	5.532	86.1	9.64
Means	37.24	14.21	5.282	87.1	9.23
S.E. of means	1.36	0.23	0.193	0.5	...
Significant Differences (20 : 1)	4.10	0.69	0.583	1.4	...
	Pln.	*Blairmont,*	*Field 26*	*Rampoor.*	
2	35.06	13.98	4.866	87.7	6.95
4	38.57	13.87	5.354	86.1	8.39
6	40.49	13.80	5.620	85.2	8.66
Means	38.04	13.88	5.280	86.3	8.00
S.E. of means	0.73	...	0.101	0.6	0.56
Significant Differences (20 : 1)	2.20	...	0.305	1.8	1.69

	Field 81 R.H.	*Field 26 Rp.*
'Z' values obtained for effect of nitrogen on tonnage.....	= 1.5131	1.6600
" " " " " " " sucrose content	= 0.9185	...
" " " " " " " juice purity.....	= 1.1795	1.0733
" " " " " " " glucose ratio....	= ...	0.7749
" " required for P=0.05.....	= 0.7568	
" " " " P=0.01.....	= 1.0807	

The applications of sulphate of ammonia have had a definite beneficial effect on the yield of cane and sucrose in both trials but have adversely affected the sucrose content of the cane and juice purity at Rose Hall and the juice purity and glucose ratio at Blairmont.

These experiments confirm previous results which indicated 4 cwt. per acre as the appropriate dose of sulphate of ammonia for second ratoons on this soil type.

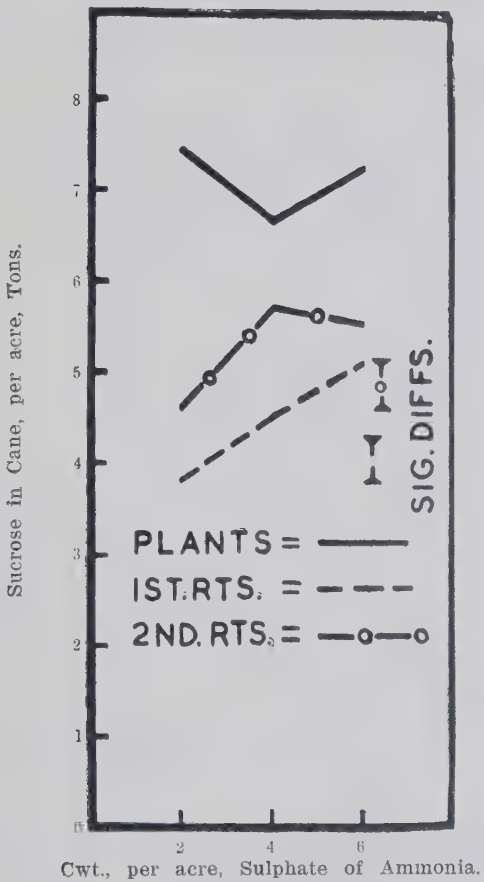


FIG. XI.

Effect of Sulphate of Ammonia on Flood-fallowed Frontland at Rose Hall (P.O.J. 2878 : Plant Canes, First and Second Ratoons).

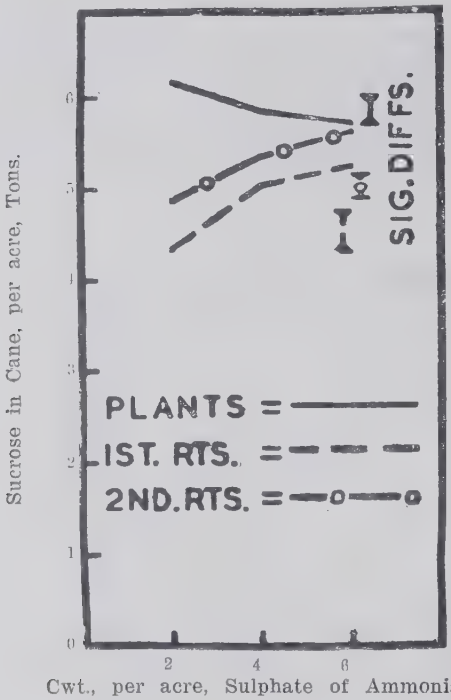


FIG. XII.

Effect of Sulphate of Ammonia on Flood-fallowed Frontland at Blairmont (P.O.J. 2878 : Plant Canes, First and Second Ratoons).

(A 5—A 6) SULPHATE OF AMMONIA ON FLOOD-FALLOWED FRONTLAND (THIRD RATOONS, P.O.J. 2878).

Fields 8 Sp., Skeldon; and 45 O., Ogle.

(Plant cane results reported in Sugar Bull. No. 5, pp. 72-75.)
(First ratoon results reported in Sugar Bull. No. 6, pp. 62-65.)
(Second ratoon results reported in Sugar Bull. No 7, pp. 72-74.)

The results of the two trials and their combination with two others (Fields 8 E. & M., Skeldon, and 26 W., Lusignan, reported in *Sugar Bull.* No. 7, pp. 74—77) are presented in Table LXV and Figure XIII.

TABLE LXV.

Effect of Sulphate of Ammonia on Third Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland.

S/A., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln. Skeldon, Field 8 Springlands.				
2	25.83	15.69	4.053	88.4	7.81
4	28.21	15.08	4.254	87.2	9.67
6	29.91	15.28	4.570	86.6	10.90
8	29.02	15.01	4.356	87.0	9.91
Means	28.24	15.26	4.308	87.3	9.57
	Pln. Ogle, Field 45 Ogle.				
2	27.27	14.05	3.831	89.1	5.30
4	33.26	13.67	4.547	87.3	5.66
6	35.36	13.78	4.873	86.1	7.73
8	32.13	13.24	4.254	86.6	7.47
Means	32.00	13.68	4.376	87.3	6.54
	Combination of Four Experiments.				
2	25.99	14.31	3.719	88.1	6.37
4	30.54	14.11	4.309	87.5	7.26
6	31.13	13.87	4.318	86.4	8.45
8	30.88	13.36	4.126	86.0	8.26
Means	29.63	13.91	4.118	87.0	7.58
S.E. of means	0.43	0.13	0.060	0.3	0.23
Significant Differences (20 : 1)	1.25	0.39	0.174	0.9	0.66

"Z" value obtained for effect of nitrogen on tonnage.....=1.7277
" " " " " " " " sucrose content.....=1.4321
" " " " " " " " juice purity.....=1.4724
" " " " " " " " glucose ratio.....=1.4499
" " required for P=0.01.....=0.7086

The dressings of sulphate of ammonia had a definite beneficial effect on the yield of cane and sucrose and an adverse effect on the sucrose content of the cane, the juice purity and the glucose ratio. The experiments point very definitely to 4 cwt. sulphate of ammonia per acre as a sound economic application on the frontland clays.

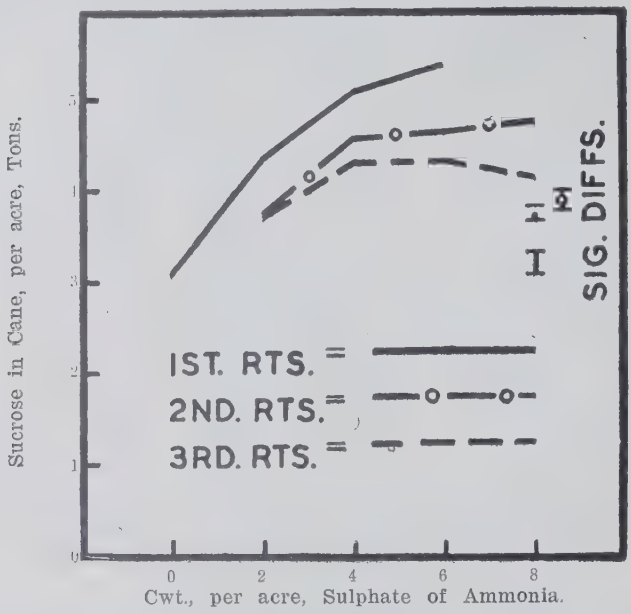


FIG. XIII.

Effect of Sulphate of Ammonia on Flood-fallowed Frontland (P.O.J. 2878: Combined Results).

(A 7—A 10) NITROGENOUS AND PHOSPHATIC MANURES ON FLOOD-FALLOWED FRONTLAND (PLANT CANES).

Fields 23 B., Albion; 15 F., La Bonne Intention; 34 V.S., Versailles; and 35 C.I., Leonora.

This series of 3 x 3 Latin squares was started mainly with a view to determining whether Nicifos (18 : 18) and Nitrochalk have the same effect as sulphate of ammonia at equivalent nitrogen doses. It was also felt that the trials would indicate any phosphate deficiency there might be in the areas tested.

The data are present in Table LXVI where those from three of the trials are also combined. In the fourth trial (Field 15 F., La Bonne Intention), several plots were accidentally thrown out by the harvesters before they could be weighed. In consequence the tonnage data under Field 15 F. are for means of two plots only and this test has not been combined with the others.

TABLE LXVI.

Effect of Various Nitrogenous and Phosphatic Manures on Plant Canes on Flood-Fallowed Frontland.

Fertiliser.	Dose per acre,		Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	N, lb.	P_2O_5, lb.					
		Pln.	*Leonora,*	*Field 35*	*Cornelia*	*Ida.*	
Nicifos	47	47	40.47	14.31	5.459	86.5	8.04
Nitrochalk	47	...	39.35	14.18	5.410	87.1	9.57
S. of Ammonia	47	...	34.63	13.52	5.158	86.3	12.54
Means	...	...	38.15	14.00	5.342	86.6	10.05
		Pln.	*Versailles,*	*Field 34*	*Versailles.*		
Nicifos	47	47	49.62	14.09	...	88.2	11.07
Nitrochalk	47	...	48.01	14.57	...	88.8	11.65
S. of Ammonia	47	...	44.86	14.26	...	88.7	9.51
Means	...	...	47.50	14.31	6.797	88.6	10.74
		Pln.	*Albion,*	*Field 23*	*Belvedere.*		
Nicifos	47	47	37.10	15.40	...	89.7	5.42
Nitrochalk	47	...	33.16	14.99	...	89.4	5.78
S. of Ammonia	47	...	33.55	13.99	...	89.2	6.43
Means	...	...	34.60	14.79	5.117	89.4	5.88
		Pln.	*La Bonne*	*Intention,*	*Field 15*	*Felicity.*	
Nicifos	47	47	45.87	14.18	...	89.8	5.16
Nitrochalk	47	...	47.94	14.12	...	88.1	6.34
S. of Ammonia	47	...	47.01	14.66	...	88.9	5.10
Means	...	...	46.94	14.32	6.722	88.9	5.53
		Combination		*of Three*	*Experiments.*		
Nicifos	47	47	42.40	14.60	...	88.1	8.18
Nitrochalk	47	...	40.17	14.58	...	88.4	9.22
S. of Ammonia	47	...	37.68	13.92	...	88.1	9.28
Means	...	...	40.08	14.37	5.759	88.2	8.89

Statistical examination of the data has revealed that there were no significant differences in the cane yields and only in one instance (Field 35 C.I., Leonora) was there any significant effect on cane quality. At Leonora the canes from the sulphate of ammonia plots had a definitely lower sucrose con-

tent and a higher, but not significant, glucose ratio than did the canes from the other treatments.

The practical indications from these tests are (a) that Nitrochalk is as good as sulphate of ammonia, at equivalent nitrogen doses, and (b) that, with the possible exception of Field 23 B., Albion, none of the areas is likely to respond to phosphatic applications. The soil of Field 23 B., Albion, lacks Truog-available phosphate completely and the apparent increment of four tons of cane on the Nicifos plots suggests that phosphatic dressings may prove beneficial on this area.

(A 11) Nitrogenous and Phosphatic Manures on Flood-Fallowed Frontland (Plant Canes, P.O.J. 2878).

Field 1 F. F.A., Rose Hall.

This 6 x 6 Latin square was designed to compare sulphate of ammonia, Nitrochalk and Nicifos (18 : 18) as sources of nitrogen, and superphosphate, basic slag and Nicifos as sources of phosphate. The results appear in Tables LXVII and LXVIII, and Figure XIV.

Table LXVII.

Effect of Various Nitrogenous and Phosphatic Manures on Plant Canes of P.O.J. 2878 on Flood-fallowed Frontland at Pln. Rose Hall.

Fertiliser.	Dose per Acre,		Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	N, lb.	P_2O_5, lb.					
Nicifos	47	47	36.51	16.19	5.911	89.9	5.34
N. Chalk + B. Slag	47	47	36.25	15.98	5.793	89.8	6.01
S. of Ammonia + B. Slag	47	47	36.96	16.43	6.073	91.4	4.09
S. of Ammonia + Superphosphate	47	47	35.93	16.20	5.821	90.8	5.00
S. of Ammonia	47	...	33.35	16.75	5.586	91.6	4.25
Nitrochalk	47	...	33.28	16.65	5.541	91.7	4.79
Means	...	...	35.38	16.37	5.787	90.9	4.91
S.E. of means	...	...	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...	...	...

Statistical analysis of the results shows that there were no significant differences between the effects of the various individual treatments on tonnage or cane quality. There was, however, a suggestion of an effect from phosphate and when all the phosphate treatments were combined against the no-phosphate, the results in Table LXVIII were obtained.

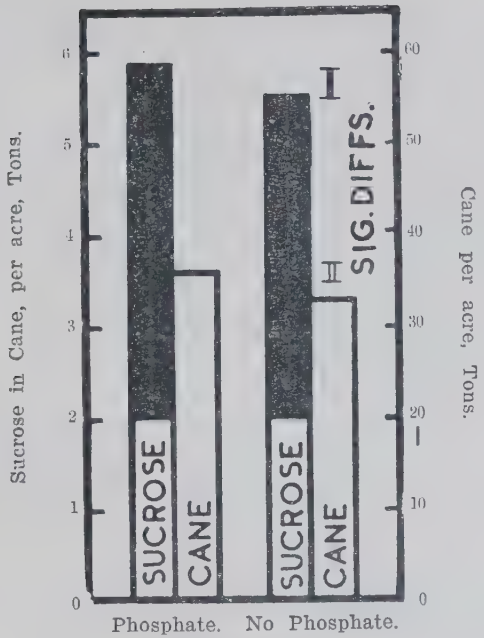


FIG. XIV.

Effect of Phosphate on Flood-fallowed Frontland at Rose Hall (P.O.J. 2878 : Plant Canes).

TABLE LXVIII.

Effect of Phosphate on Plant Canes of P.O.J. 2878 on Flood-fallowed Frontland at Pln. Rose Hall.

Treatment.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
Phosphate	36.41	16.20	5.898	90.5	5.11
No Phosphate	33.32	16.70	5.564	91.7	4.52
Difference due to Phosphate	3.09	−0.50	0.334	−1.2	0.59
Significant Differences (20 : 1)	1.92	0.48	0.316	1.0	...

"Z" value obtained for effect of phosphate on tonnage.....=1.2172
" " " " " " " " juice purity.....=0.9661
" " " " " " " " sucrose content.....=0.7754
" " required for P=0.05.....=0.7352
" " " " P=0.01.....=1.0457

It will be seen that phosphatic applications had a definite beneficial effect on yield of cane and sucrose but an adverse effect on the sucrose content of the cane and the juice purity.

The practical conclusions to be drawn are :

(a) That sulphate of ammonia, Nitrochalk and Nicifos are equally effective on this area at equivalent Nitrogen doses (see also A 7—A 10) ;

(b) That paying responses may be expected from applications of 47 lb. P_2O_5 per acre;

(c) That basic slag, superphosphate and Nicifos are equally effective on this area at equivalent phosphate doses.

(A 12) Nitrogenous and Phosphatic Manures on Flood-Fallowed Frontland (Plant Canes, P.O.J. 2878).

Field 2 Ab., Blairmont.

This 4 x 4 Latin square compared sulphate of ammonia, Nitrochalk, nitrate of soda and Nicifos (18 : 18) at equivalent doses of nitrogen. The last named fertiliser, carrying phosphate as well, enabled a determination to be made as to whether the area would respond to phosphatic applications. The results appear in Table LXIX.

Table LXIX.

Effect of Various Nitrogenous and Phosphatic Manures on Plant Canes of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Blairmont.

Fertiliser.	Dose per Acre,		Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	N, lb.	P_2O_5, lb.					
Nicifos	47	47	40.08	15.07	6.037	89.4	4.82
S. of Ammonia	47	...	39.25	14.16	5.672	89.5	4.28
N. of Soda	47	...	35.17	13.74	5.504	89.4	6.21
Nitrochalk	47	...	45.75	13.31	5.332	86.2	6.93
Means	...	...	40.06	14.07	5.636	88.6	5.56
S.E. of means	...	...	...	0.28	0.112	0.7	0.26
Significant Differences (20 : 1)	...	...	...	0.97	0.389	2.5	0.90

"Z" value obtained for effect of treatments on sucrose content.....=0.9818
" " " " " " " juice purity.....=0.8033
" " " " " " " glucose ratio.....=1.5541
" " required for P=0.05.....=0.7798
" " " " P=0.01.....=1.1401

There was considerable variation in the individual plot yields of cane from the same treatment and the replications were not sufficient to make the mean

differences between treatments significant. There were indications, however, that, from the point of view of cane tonnage, nitrate of soda was least satisfactory, Nitrochalk best and Nicifos and sulphate of ammonia about equivalent and intermediate in effect between nitrate of soda and Nitrochalk.

It is doubtful if phosphatic dressings would prove economic on this area.

The treatments had a definite effect on the sucrose content of the cane, the juice purity and the glucose ratio, the cane from the Nitrochalk plots tending to be of poorer quality than that from the sulphate of ammonia and Nicifos.

(A 13—A 14) Sulphate of Ammonia on Pegassy Clay (Plant Canes, P.O.J. 2878).

Fields 21 Gv., Wales; and 43 E., Uitvlugt.

These areas were treated with sulphate of ammonia and basic slag at three levels each and with sulphate and muriate of potash as compared with no potash. The nitrogen responses are shown in Table LXX.

Table LXX.

Effect of Sulphate of Ammonia on Plant Canes of P.O.J. 2878 on Pegassy Clay.

S/A., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln.	*Wales,*	*Field*	*21 Gv.*	
6	42.97	15.63	6.776	89.5	8.29
8	43.90	15.85	6.923	90.6	7.74
10	40.33	15.82	6.360	90.4	8.00
Means	42.40	15.77	6.686	90.2	8.01
S.E. of means	0.70	...	0.110	...	...
Significant Differences (20 : 1)	2.11	...	0.333	...	...
	Pln.	*Uitvlugt,*	*Field*	*43 E.*	
6	34.27	15.39	...	91.0	8.39
8	34.14	15.47	...	91.1	7.47
10	37.26	15.19	...	89.6	8.90
Means	35.22	15.35	5.406	90.6	8.25
S.E. of means	...	...	...	0.4	...
Significant Differences (20 : 1)	...	...	...	1.2	...

	Field 21 Gv.	43 E.
"Z" value obtained for effect of nitrogen on tonnage.....	=0.9802	...
" " " " " " " " juice purity...	= ...	0.9178
" " required for P=0.05.....	= 0.7568	
" " " " P=0.01.....	= 1.0807	

At Wales, an application of 10 cwt. of sulphate of ammonia had a definite depressing effect on the yield as compared with applications of 6 and 8 cwt.

At Uitvlugt there were no definite differential effects on yield between the three treatments, but the heaviest dressing caused a slight but statistically significant drop in juice purity.

(A 15) Sulphate of Ammonia on Pegassy Clay (Second Ratoons, P.O.J. 2878).

Field 31 E., Uitvlugt.

(*Plant cane results reported in Sugar Bull. No. 6, pp. 72-74.*)
(*First ratoon results reported in Sugar Bull. No. 7, pp. 80-82.*)

The effect of the sulphate of ammonia applications to the second ratoons are shown in Table LXXI.

Table LXXI.

Effect of Sulphate of Ammonia on Second Ratoons of P.O.J. 2878 on Pegassy Clay at Pln. Uitvlugt.

S/A., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
6	30.76	15.77	4.826	90.3	5.43
8	32.05	15.76	5.029	90.4	5.53
10	34.16	15.54	5.360	89.7	6.12
Means	32.32	15.69	5.072	90.1	5.69
S.E. of means	0.93	...	0.146	...	...
Significant Differences (20 : 1)	2.80	...	0.439	...	...

'Z' value obtained for effect of nitrogen on tonnage.....=0.9467
" " required " P=0.05.....=0.7568

It will be seen that there was a general tendency for yields to rise with increasing doses of sulphate of ammonia, the differences between the effects of 6 and 8 cwt. and 8 and 10 cwt. not being individually significant, but 10 cwt. proving definitely better than 6. The increments, however, would only meet the cost of the additional fertiliser and in practice 6 cwt. would probably be the economic dose.

(A 16—A 20) Nitrogenous and Phosphatic Manures on Pegassy Clay (First Ratoons, P.O.J. 2878).

Fields 10 C. (A and B) Wales; 64 and 69 Z., Uitvlugt; and 36 S.D., Cane Grove.

(*Plant cane results reported in Sugar Bull. No. 7, pp. 84-90.*)

These trials constitute a chain of 6 x 6 Latin squares on pegassy clay designed mainly to investigate the possibility of finding a non-acidifying nitrogenous fertiliser for this already very acid soil type. In addition, information was sought as to the response, if any, to phosphatic applications. Field 69 Z. was used in the first ratoons in place of Field 70 Z. from which plant cane results have been reported.

The results appear in Tables LXXII and LXXIII, and Figures XV and XVI.

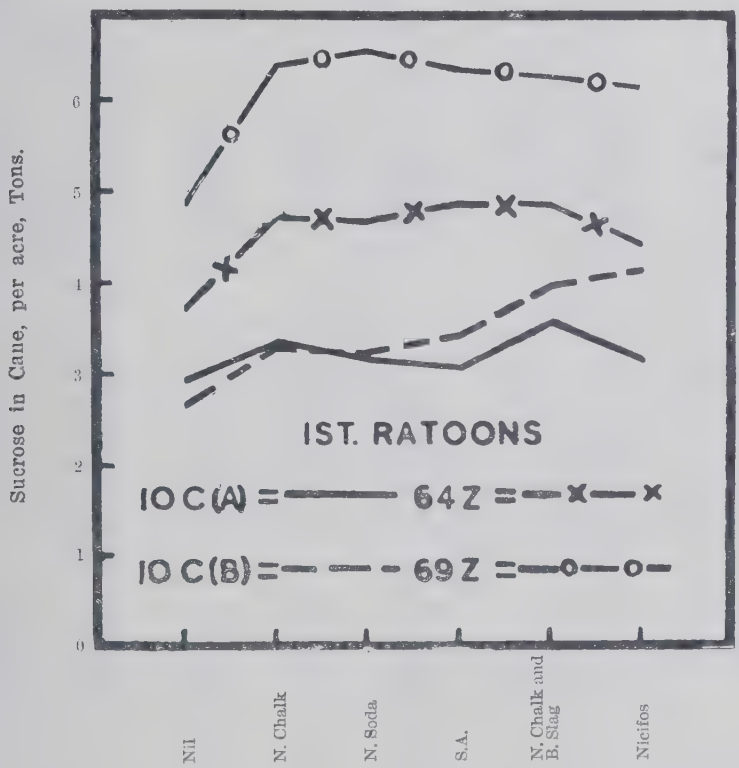


Fig. XV.

Effect of Nitrogenous and Phosphatic Manures on Pegassy Clay (P.O.J. 2878: First Ratoons).

TABLE LXXII.

Effect of Various Nitrogenous and Phosphatic Manures on First Ratoons of P.O.J. 2878 on Pegassy Clay.

Fertiliser.	Dose per Acre, N, lb.	Dose per Acre, P_2O_5, lb.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
		Pln.	*Wales, Field 10 Cottage*			(*A*).	
Nitrochalk + B. Slag	141	141	26.15	13.60	3.585	84.3	12.30
Nitrochalk	141	...	24.52	13.22	3.362	84.5	11.45
N. of Soda	141	...	23.10	13.75	3.167	85.3	11.19
Nicifos	141	141	23.09	13.59	3.166	84.4	12.37
S. of Ammonia	141	...	22.44	14.18	3.077	86.4	11.58
Nil	...	...	21.43	13.91	2.938	85.3	11.10
Means	...	...	23.45	13.71	3.216	85.0	11.66
		Pln.	*Wales, Field 10 Cottage*			(*B*).	
Nicifos	141	141	29.75	13.95	4.150	85.2	11.29
Nitrochalk + B. Slag	141	141	29.13	13.67	3.982	84.8	11.19
N. of Ammonia	141	...	24.85	13.75	3.417	86.1	10.53
Nitrochalk	141	...	24.21	13.58	3.288	87.0	9.59
N. of Soda	141	...	23.10	14.03	3.241	86.8	9.67
Nil	...	...	18.18	14.61	2.656	86.1	10.37
Means	...	...	24.87	13.93	3.456	86.0	10.44
		Pln.	*Uitvlugt, Field 64 Zeeburg.*				
S. of Ammonia	141	...	33.78	14.30	4.878	85.8	11.23
Nitrochalk + B. Slag	141	141	33.70	14.73	4.866	87.7	8.80
Nitrochalk	141	...	32.64	14.32	4.713	86.2	9.95
N. of Soda	141	...	32.50	14.31	4.693	86.4	9.46
Nicifos	141	141	30.75	14.08	4.440	83.6	11.14
Nil	...	...	25.67	14.91	3.707	87.9	8.39
Means	...	...	31.51	14.44	4.549	86.3	9.83
		Pln.	*Uitvlugt, Field 69 Zeeburg.*				
N. of Soda	141	..	45.75	14.63	6.565	89.5	6.88
Nitrochalk	141	...	44.54	14.34	6.391	86.6	8.73
S. of Ammonia	141	...	44.15	14.30	6.336	87.7	8.26
Nitrochalk + B. Slag	141	141	43.72	14.40	6.274	89.1	7.16
Nicifos	141	141	42.97	14.07	6.166	85.3	8.91
Nil	...	...	33.94	14.34	4.870	88.8	7.12
Means	...	...	42.51	14.35	6.100	87.8	7.84

Effect of Various Nitrogenous and Phosphatic Manures on P.O.J. 2878 on Pegassy Clay.—(Contd.)

Fertiliser.	Dose per Acre, N, lb.	Dose per Acre, P_2O_5, lb.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Combination		*of 4*	*Experiments*		*(First*	*Ratoons).*
Nitrochalk + B. Slag	141	141	33.17	14.10	4.677	86.5	9.86
Nicifos	141	141	31.64	13.92	4.461	84.6	10.93
Nitrochalk	141	...	31.48	13.86	4.439	86.1	9.93
S. of Ammonia	141	...	31.31	14.13	4.415	86.5	10.40
N. of Soda	141	...	31.11	14.18	4.387	87.0	9.30
Nil	...	...	24.81	14.44	3.498	87.0	9.25
Means	...	...	30.59	14.10	4 313	86.3	9.94
S.E. of means	...	...	1.10	...	0.155	0.4	0,34
Significant Differences (20 : 1)	...	...	3.31	...	0.448	1,3	0.98
	Total	*for*	*2 Crops*	*(Combination of 4*		*Experiments).*	
Nitrochalk + B. Slag	141	141	68.39	...	9.273	...	...
Nicifos	141	141	68.38	...	9.256	...	...
S. of Ammonia	141	...	65.03	...	8.815	...	...
Nitrochalk	141	...	63.99	...	8.682	...	...
N. of Soda	141	...	63.79	...	8.652	...	...
Nil	...	...	50.31	...	6.826	...	...
Means	...	...	63.31	...	8.584	...	...

'Z' value (First Ratoons only) obtained for

effect of fertilisers on tonnage.....=1.6020

,, ,, ,, ,, juice purity.....=0.6949

,, ,, ,, ,, glucose ratio.....=0.6512

,, ,, required for P.=0.01.....=0.6028

TABLE LXXIII.

Effect of Various Nitrogenous and Phosphatic Manures on P.O.J. 2878 on Pegassy Clay at Pln. Cane Grove.

Fertiliser.	Dose per Acre,		Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	N, lb.	P_2O_5, lb.					
			First	*Ratoons.*			
Nicifos*	141	141	27.47	14.85	4.044	88.0	8.35
Nicifos	141	141	26.73	14.19	3.935	87.1	9.48
Nitrochalk	141	...	24.50	14.91	3.606	88.8	9.62
S. of Ammonia	141	...	22.53	14.31	3.316	87.7	9.39
S. of Ammonia*	141	...	22.46	14.90	3.306	87.9	8.62
N. of Soda	141	...	19.73	15.19	2.904	89.2	8.18
Means	...	...	23.90	14.72	3.518	88.1	8.94
S. E. of means	...	...	1.17	...	0.172	...	...
Significant Differences (20 : 1)	...	...	3.45	...	0.508	...	...
			Total for	*2 Crops.*			
Nicifos*	141	141	58.05	...	8.221	...	...
Nicifos	141	141	55.95	...	7.926	...	...
Nitrochalk	141	...	42.99	...	6.132	...	...
S. of Ammonia	141	...	39.53	...	5.638	...	...
S of Ammonia*	141	...	39.19	...	5.591	...	...
N. of Soda	141	...	36.00	...	5.126	...	...
Means	...	...	45.28	...	6.439	...	...

*Plots had an application of pulverised limestone at the rate of one ton per acre.

'Z' value (First Ratoons only) obtained for effect of
fertilisers on tonnage.....=0.9082
,, ,, required for P=0.01.....=0.7058

Consideration of the plant cane and first ratoon results leads to the following conclusions :

(a) Nitrochalk and sulphate of ammonia are equally effective at equivalent nitrogen doses;

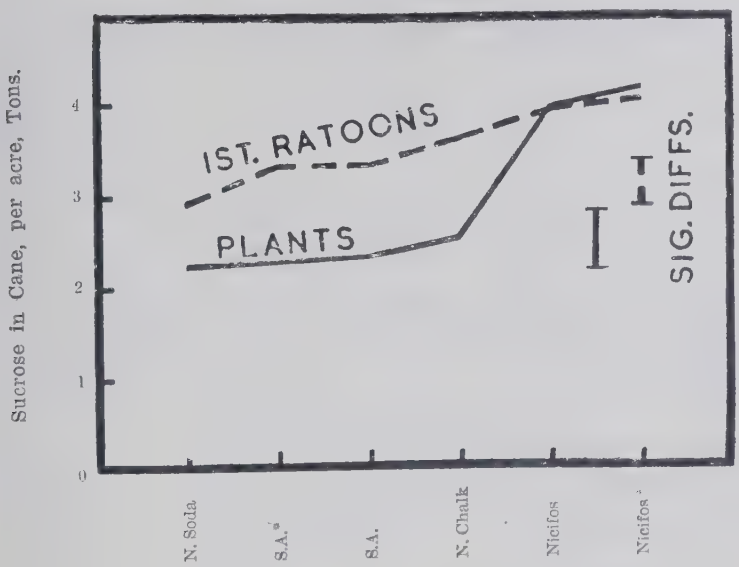
(b) Nitrate of soda yields, though not differing significantly, tend in general to be slightly lower than those from nitrogen-equivalent doses of Nitrochalk or sulphate of ammonia;

(c) Applications, to plants and ratoons, of 141 lb. nitrogen per acre (=6 cwt. sulphate of ammonia) will give statistically significant and paying responses on these soils;

(d) Fields 36 S.D., Cane Grove, and 10 C., Wales, will yield paying responses to phosphatic applications, but no phosphates are needed in Fields 64 or 69 Z., Uitvlugt;

(e) On phosphate-deficient areas, Nitrochalk plus basis slag is as efficient as Nicifos;

(f) In Field 64 Z., Uitvlugt, where phosphatic dressings appear not to be needed, Nitrochalk plus basic slag proved definitely better than Nicifos on the first ratoon crop.



* Plus 1 Ton Limestone per acre at Plants.

FIG. XVI.

Effect of Nitrogenous and Phosphatic Manures on Pegassy Clay at Cane Grove (P.O.J. 2878: Plant Canes and First Ratoons).

SUB-SECTION B.—PHOSPHATIC MANURES.

(B 1) Superphosphate of Lime on Flood-Fallowed Frontland (First Ratoons, P.O.J. 2878).

Field 20 R., Port Mourant.

The effects of nitrogenous applications to this site were discussed in A 1; those of the superphosphate dressings are given in Table LXXIV.

Table LXXIV.

Effect of Superphosphate of Lime on First Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Port Mourant.

Superphosphate, Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	38.44	15.82	...	89.3	6.51
3	36.90	15.78	...	88.1	6.73
6	37.71	15.63	...	87.7	6.78
Means	37.68	15.74	5.931	88.4	6.67
S. E. of means	...	...	...	0.4	...
Significant Differences (20 : 1)	...	...	...	1.2	...

'Z' value obtained for effect of phosphate on juice purity.....=1.0619
„ „ required for P=0.01.....=1.0807

It will be seen that there was only one definite effect, *viz.*, a deleterious one on juice purity.

(B 2) Residual Effect of Superphosphate of Lime on Flood-Fallowed Frontland (First Ratoons, P.O.J. 2878).

Field 23 R., Port Mourant.

(*Plant cane results reported in Sugar Bull. No. 7, p 92.*)

It will be seen from Table LXXV that there was no definite residual effect from the dressings given the plant canes.

TABLE LXXV.

Residual Effect of Superphosphate of Lime on First Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Port Mourant.

Superphosphate, Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	34.61	14.54	...	89.7	6.15
3	35.45	13.94	...	89.4	5.51
6	36.46	14.43	...	89.8	5.22
Means	35.51	14.30	5.078	89.6	5.63
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...

(B 3—B 4) SUPERPHOSPHATE OF LIME ON FLOOD-FALLOWED FRONTLAND (SECOND RATOONS, P.O.J. 2878).

Fields 81 R.H., Rose Hall; and 26 Rp., Blairmont.

(*Plant cane results reported in Sugar Bull. No. 6, p. 82.*)
(*First ratoon results reported in Sugar Bull. No. 7, pp. 94-95.*)

It will be seen from Table LXXVI that the phosphatic dressings had no definite effect at Rose Hall but that there was a definite beneficial effect at Blairmont. The latter is illustrated in Figure XVII.

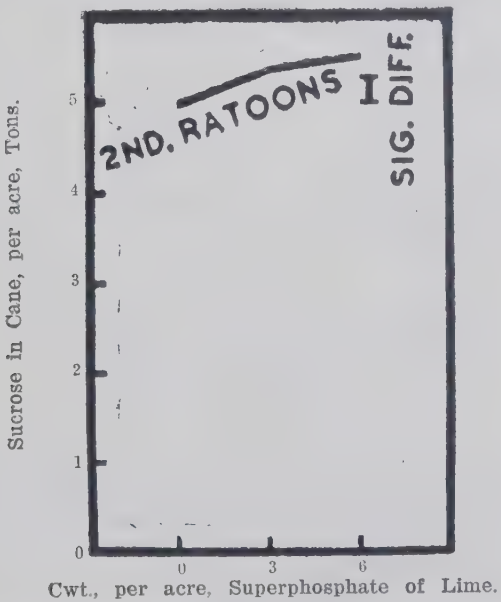


FIG. XVII.

Effect of Superphosphate of Lime on Flood-fallowed Frontland at Blairmont (P.O.J. 2878 : Second Ratoons).

TABLE LXXVI.

Effect of Superphosphate of Lime on Second Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland.

Superphosphate, Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln.	*Rose Hall.*	*Field 81*	*Rose Hall.*	
0	36.11	14.16	...	86.2	8.79
3	38.21	14.52	...	87.7	9.34
6	37.40	13.94	...	87.4	9.55
Means	37.24	14.21	5.292	87.1	9.23
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...
	Pln.	*Blairmont.*	*Field 26*	*Ramjoor.*	
0	35.90	14.13	4.987	86.8	8.15
3	38.64	13.59	5.367	85.5	8.41
6	39.58	13.94	5.498	86.7	7.44
Means	38.04	13.89	5.284	86.3	8.00
S.E. of means	0.73	...	0.101	...	...
Significant Differences (20 : 1)	2.20	...	0.306	...	...

Field 26 Rp.

'Z' value obtained for effect of phosphate on tonnage..... .....=1.2698

„ „ required for P.=0.01.....=1.0807

(B 5—B 6) BASIC SLAG ON PEGASSY CLAY (PLANT CANES, P.O.J. 2878).

Fields 21 Gv., Wales; and 43 E., Uitvlugt.

It will be seen from Table LXXVII that, at both sites, the application of phosphates had a definite adverse effect on juice purity. Phosphates also induced a definte rise in glucose ratio at Uitvlugt and the figures suggest a similar effect at Wales. On the other hand, the basic slag did not definitely effect cane yields or sucrose contents.

TABLE LXXVII.

Effect of Basic Slag on Plant Canes of P.O.J. 2878 on Pegassy Clay.

Basic Slag, Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln.	*Wales,*	*Field*	*21 Gv.*	
0	42.36	15.71	...	91.2	7.55
5	41.83	15.79	...	90.1	7.86
10	43.00	15.79	...	89.3	8.61
Means	42.40	15.76	6.682	90.2	8.01
S.E. of means	...	...	...	0.6	...
Significant Differences (20 : 1)	...	...	...	1.8	...
	Pln.	*Uitvlugt,*	*Field*	*43 E.*	
0	33.64	15.57	...	91.7	7.40
5	35.14	15.22	...	90.5	8.00
10	36.88	15.28	...	89.6	9.35
Means	35.22	15.36	5.410	90.6	8.25
S.E. of means	...	...	...	0.4	0.53
Significant Differences (20 : 1)	...	...	...	1.2	1.60

	21 Gv.	*Field 43 E.*
"Z" value obtained for effect of Basic Slag on juice purity...	=0.8076	1.2845
" " " " " " " " " glucose ratio	= ...	0.9490
" " required " P=0.05.....	=	0.7568
" " " " P=0.01.....	=	1.0807

(B 7) BASIC SLAG ON PEGASSY CLAY
(SECOND RATOONS, P.O.J. 2878).

Field 31 E., Uitvlugt.

(*Plant cane results reported in Sugar Bull. No. 6, p. 84.*)
(*First ratoon results reported in Sugar Bull. No. 7, p. 97.*)

From Table LXXVIII it will be seen that the phosphatic dressings had no definite effects upon tonnage, sucrose content, juice purity or glucose ratio. The rise in glucose ratio was, however, almost statistically significant.

TABLE LXXVIII.

Effect of Basic Slag on Second Ratoons of P.O.J. 2878 on Pegassy Clay at Pln. Uitvlugt.

Basic Slag Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	30.85	15.75	...	90.6	5.24
5	32.86	15.78	...	89.9	5.97
10	33.26	15.54	...	89.9	5.87
Means	32.32	15.69	5.071	90.1	5.69
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...

SUB-SECTION C.—POTASSIC MANURES.

(C 1) SULPHATE OF POTASH ON FLOOD-FALLOWED FRONTLAND (FIRST RATOONS, P.O.J. 2878).

Field 20 R., Port Mourant.

Table LXXIX indicates that there was no definite response to potassic dressings.

TABLE LXXIX.

Effect of Sulphate of Potash on First Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Port Mourant.

S/P., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	35.30	15.51	...	88.0	7.00
2	37.99	15.97	...	88.7	6.42
4	39.76	15.75	...	88.4	6.60
Means	37.68	15.74	5.931	88.4	6.67
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...

(C 2) Residual Effect of Sulphate of Potash on Flood-Fallowed Frontland (First Ratoons, P.O.J. 2878).

Field 23 R., Port Mourant.

(*Plant cane results reported in Sugar Bull. No. 7, p. 100.*)

It will be seen from Table LXXX that there was no significant residual effect from the potassic applications given the plant canes.

Table LXXX.

Residual Effect of Sulphate of Potash on First Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland at Pln. Port Mourant.

S/P., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	34.20	14.33	...	89.8	5.41
2	35.53	14.09	...	89.2	5.64
4	36.80	14.48	...	90.0	5.84
Means	35.51	14.30	5.078	89.7	5.63
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...

(C 3—C 4) Sulphate of Potash on Flood-Fallowed Frontland (Second Ratoons, P.O.J. 2878).

Fields 81 R.H., Rose Hall; and 26 Rp., Blairmont.

(Plant cane results reported in Sugar Bull. No. 6, p. 87.)
(First ratoon results reported in Sugar Bull. No. 7, p. 101.)

The results of these trials appear in Table LXXXI. Sulphate of Potash had no significant effects at Rose Hall but at Blairmont it definitely increased the yield of second ratoon cane. This point is illustrated in Figure XVIII.

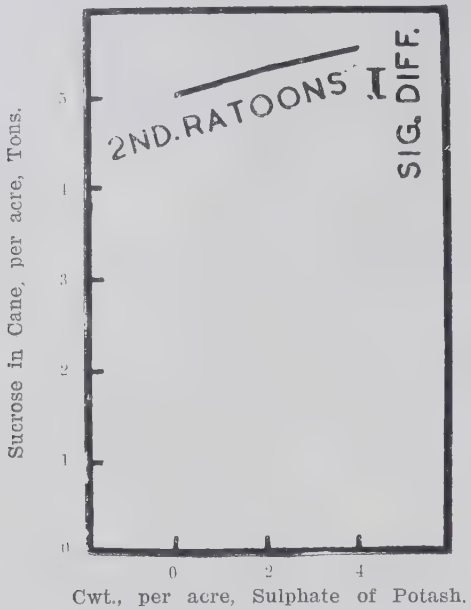


Fig. XVIII.

Effect of Sulphate of Potash on Flood-fallowed Frontland at Blairmont (P.O.J. 2878: Second Ratoons).

TABLE LXXXI.

Effect of Sulphate of Potash on Second Ratoons of P.O.J. 2878 on Flood-Fallowed Frontland.

S/P., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln.	*Rose Hall,*	*Field 81*	*Rose Hall.*	
0	38.42	14.23	...	86.9	9.78
2	36.68	14.19	...	86.7	8.44
4	36.62	14.21	...	87.6	9.46
Means	37.24	14.21	5.292	87.1	9.23
S.E. of means	...	...	...	...	...
Significant Differences (20 : 1)	...	...	...	...	...
	Pln.	*Blairmont,*	*Field 26*	*Rampoor.*	
0	36.04	14.09	5.006	87.0	7.76
2	38.20	13.83	5.306	86.1	8.33
4	39.88	13.74	5.539	86.0	7.91
Means	38.04	13.89	5.284	86.4	8.00
S.E. of means	0.73	...	0.101	...	...
Significant Differences (20 : 1)	2.20	...	0.306	...	...

Field 26 Rp.

'Z' value obtained for effect of potash on tonnage.....=1.3157

„ „ required for P=0.01.....=1.0807

The increment secured at Blairmont is significant but not economic.

(C 5—C 6) Sulphate and Muriate of Potash on Pegassy Clay (Plant Canes, P.O.J. 2878).

Fields 21 Gv., Wales; and 43 E., Uitvlugt.

The results of these trials are shown in Table LXXXII and Figure XIX.

Table LXXXII.

Effect of Sulphate and Muriate of Potash on Plant Canes of P.O.J. 2878 on Pegassy Clay.

Treatment.	Potash per acre, lb.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
		Pln.	*Wales,*	*Field*	*21 Gv.*	
No Potash	...	44.91	15.49	7.082	90.2	7.40
Sulphate of Potash	110	39.63	15.71	6.250	90.1	8.09
Muriate of Potash	110	42.66	16.10	6.727	90.3	8.54
Means	...	42.40	15.77	6.686	90.2	8.01
S.E. of means	...	0.70	...	0.110	...	...
Significant Differences (20 : 1)	...	2.11	...	0.333	...	...
		Pln.	*Uitvlugt,*	*Field*	*43 E.*	
No Potash	...	33.63	15.27	5.162	90.4	8.92
Sulphate of Potash	110	33.86	15.51	5.198	90.9	7.36
Muriate of Potash	110	38.17	15.28	5.859	90.5	8.49
Means	...	35.22	15.35	5.406	90.6	8.26
S.E. of means	...	1.44	...	0.221	...	...
Significant Differences (20 : 1)	...	4.34	...	0.666	...	...

	Field	
	21 Gv.	*43 E.*
"Z" value obtained for effect of potash on tonnage..... =	1.5796	0.8035
" " required " P=0.05..... =		0.7568
" " " " P=0.01..... =		1.0807

Potassic dressings had a definite adverse effect on cane yield at Wales and a definite beneficial effect at Uitvlugt. At neither site did they definitely alter sucrose contents, juice purities or glucose ratios.

At Wales the dressing in the form of muriate was definitely less deleterious than that in the form of sulphate. Similarly, at Uitvlugt the muriate was definitely better than the sulphate. Muriate is a cheaper source of potash than is sulphate and the increment due to the muriate at Uitvlugt makes the dressing economically sound.

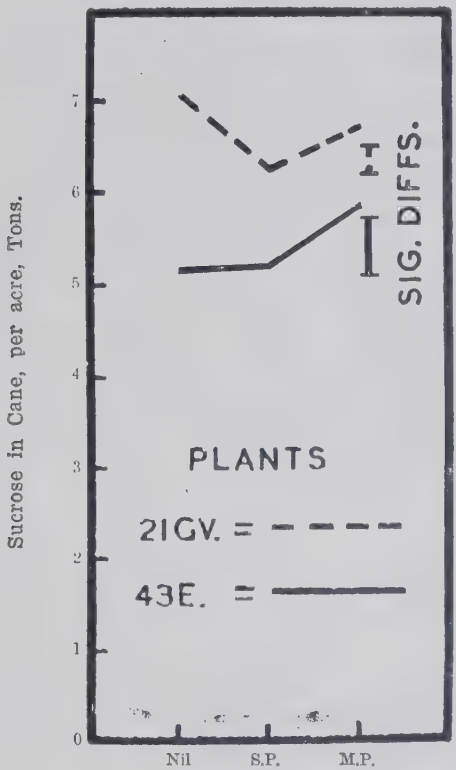


FIG. XIX.

Effect of Sulphate and Muriate of Potash on Pegassy Clay (P.O.J. 2878 : Plant Canes).

(C 7) Sulphate of Potash on Pegassy Clay (Second Ratoons, P.O.J. 2878).

Field 31 E., Uitvlugt.

(Plant cane results reported in Sugar Bull. No. 6, p. 87.)
(First ratoon results reported in Sugar Bull. No. 7, p. 103.)

The results of this trial are presented in Table LXXXIII.

Table LXXXIII.

Effect of Sulphate of Potash on Second Ratoons of P.O.J. 2878 on Pegassy Clay at Pln. Uitvlugt.

S./P., Cwt./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	30.52	15.17	4.789	89.6	5.82
2	32.02	15.95	5.024	90.3	5.37
4	34.44	15.94	5.404	90.4	5.89
Means	32.33	15.69	5.072	90.1	5.69
S.E. of means	0.93	...	0.146	...	...
Significant Differences (20 : 1)	2.80	...	0.439	...	...

'Z' value obtained for effect of potash on tonnage.....=1.0899
„ „ required for P=0.01.....=1.0807

The potassic dressings have had a definite beneficial effect on the second ratoon yield. There had also been a definite response in the plant canes. It is advised that the plant canes and first ratoons of the next cycle on this field be each given 2 cwt. of muriate of potash per acre.

SUB-SECTION D.—LIMING MATERIALS.

(D 1—D 3) Liming Materials on Flood-Fallowed Frontland (Third Ratoons).

Fields 71 B.L., Blairmont; 16 E.P., Enmore; and 45 O., Ogle.

(Plant cane results reported in Sugar Bull. No. 5, pp. 88-90.)
(First ratoon results reported in Sugar Bull. No. 6, pp. 79-81.)
(Second ratoon results reported in Sugar Bull. No. 7, pp. 90-92.)

The third ratoon yields from the long-term liming trials are placed on record in Table LXXXIV. There are no definite differential effects so far, but the trials are being carried on over several crop cycles with a view to determining the effects of the treatments, over a prolonged period, on yield and on the soil.

TABLE LXXXIV.

Residual Effect of Liming Materials on Third Ratoons on Flood-Fallowed Frontland.

Applications, per Acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
	Pln. Blairmont, Field 71 Bush Lot, D. 625.				
Nil	17.33	13.96	...	86.1	10.39
½ ton P. limestone	17.28	14.26	...	84.9	11.31
1 ton P. limestone	17.54	14.34	...	86.0	9.39
½ ton Slaked lime	17.28	13.74	...	84.8	10.89
1 ton Slaked lime	16.70	14.01	...	85.1	11.72
Means	17.23	14.06	2.423	85.4	10.74
Pln.	*Enmore, Field 16 East,*		*Paradise,*	*Diamond*	*10.*
Nil	33.23	13.33	...	88.3	5.70
½ ton P. limestone	31.01	14.16	...	88.9	5.28
1 ton P. limestone	31.24	13.30	...	88.1	5.87
½ ton Slaked lime	32.87	13.76	...	89.4	5.48
1 ton Slaked lime	32.83	13.94	...	89.8	4.82
Means	32.24	13.70	4.417	88.9	5.43
	Pln. Ogle, Field 45 Ogle, P.O.J. 2878.				
Nil	27.57	13.41	...	86.6	6.51
½ ton P. limestone	28.81	13.12	...	85.6	6.06
1 ton P. limestone	29.65	12.61	...	86.0	6.26
½ ton Slaked lime	26.32	13.56	...	86.4	6.32
1 ton Slaked lime	31.21	13.33	...	86.3	5.93
Means	28.71	13.21	3.793	86.2	6.22
	Combination of Three Experiments.				
Nil	26.04	13.57	...	87.0	7.53
½ ton P. limestone	25.70	13 85	...	86.5	7.55
1 ton P. limestone	26.14	13.41	...	86.7	7.18
½ ton Slaked lime	25.49	13.69	...	86.9	7.57
1 ton Slaked lime	26.91	13.76	...	87.1	7.49
Means	26.06	13.66	3.560	86.8	7.46

SUB-SECTION E.—MANGANESE ORE.

Manganese Ore on Pegassy Clay (Plant Canes, Diamond 10).

It having been suggested that an outlet might be found in agriculture for locally-available manganese ore, an experiment was laid down on pegassy clay, at Diamond, to determine whether dressings of 50 and 100 lb. of the ore, per acre, would have any effect on cane yield, etc. The results are presented in Table LXXXV.

Table LXXXV.

Effect of Manganese Ore on Plant Canes of Diamond 10 on Pegassy Clay at Pln. Diamond.

Manganese Ore, lb./acre.	Cane, Tons/acre.	Sucrose, % Cane.	Sucrose, Tons/acre.	Juice Purity.	Glucose Ratio.
0	29.70	15.26	...	92.8	3.78
50	32.68	15.45	...	92.0	3.78
100	31.18	15.85	...	92.3	4.06
Means	31.19	15.52	4.841	92.4	3.87
S.E. of means	...	...	...	0.2	...
Significant Differences (20 : 1)	...	...	...	0.6	...

"Z" value obtained for effect of Manganese Ore on juice purity.....=0.8636
" " required for P = 0.05.....=0.8188

There was some suggestion of an effect on tonnage but the differences are not statistically significant and the only definite effect of the treatments was an adverse one on juice purity.

The applications have been repeated on the first ratoons.

SUB-SECTION F.—DISCUSSION AND SUMMARY.

Nitrogenous Manures.

Frontland.

Former experiments have been amply confirmed and it can be said, with confidence, that the following minimum doses of sulphate of ammonia should be used :

For Plant Canes :..... 2 cwt. per acre,

For First, Second and Third Ratoons :..... 4 cwt. per acre.

Pegassy Clay.

Further evidence is available confirming previous indications that 6 cwt. per acre of sulphate of ammonia will yield statistically significant and 'paying' increments from both plant canes and ratoons. Owing to the high acidity of this soil type, liming should not be neglected if such heavy applications are used. Alternatively, dressings of 140 lb. Nitrogen as Nitrochalk (see below) should be tried.

Substitution of Sulphate of Ammonia.

In the past two years, trials have been made with non-acidifying manures, and results are now available from plants and first ratoons on pegasse and from plants on the frontland. These indicate that, at equivalent doses of nitrogen, Nitrochalk is quite as satisfactory as sulphate of ammonia and its extended trial on a commercial scale is strongly advised. Owing to its lower nitrogen content, Nitrochalk applications will cost more than equivalent doses of sulphate of ammonia in the ratio of 4 to 3. However, no limestone applications are needed with the Nitrochalk and a saving would be effected in this respect.

Phosphatic Manures.

Frontland.

It was stated in *Sugar Bulletin* No. 7 that in eight experiments phosphates had failed to show any definite effect on cane yield but that in four there had been various and conflicting effects on the quality of the cane. The effect of phosphatic applications, in the experiments here recorded, are summarised below (statistically insignificant effects not noted) :

Field.	Estate.	Cycle.	Truog Available Phosphate, p.p.m.		Effect of Phosphate on			
			Topsoil.	Subsoil.	Cane Tonnage.	Sucrose Content.	Juice Purity.	Glucose Ratio.
23 B.	Albion	P.	Nil	Nil	...	...	...	...
15 F.	L.B.I.	P.	32	24	...	...	...	...
34 V.S.	Versailles	P.	18	18	...	...	...	...
35 C.I.	Leonora	P.	38	24	...	...	...	...
1 F.F.A.	Rose Hall	P.	Nil	35	Beneficial	Adverse	Adverse	...
2 Ab.	Blairmont	P.	Nil	Nil	...	Beneficial	...	...
20 R.	Port Mourant	1st R.	18	32	...	...	Adverse	...
23 R.	,,	1st R.	Trace	10	...	...	...	...
81 R.H.	Rose Hall	2nd R.	30	56	...	...	...	...
26 Rp.	Blairmont	2nd R.	82	84	Beneficial	...	...	...

In Field 23 B., Albion, there was an apparent increment of four tons of cane which did not prove statistically significant (due probably to the small number of plots used in that test), but in view of the soil analytical results

there seems to be some likelihood that phosphatic dressings may prove beneficial on this area.

Phosphates should be applied to Field 1 F.F.A., Rose Hall. This experiment indicated that basic slag was as efficient as superphosphate and the displacement of the latter on our acid soils should be considered.

In Field 26 Rp., Blairmont, no yield effect was observed on the plant canes or first ratoons but, as shown above, there was one on the second ratoons. If the cost of the three applications be considered, the increment is uneconomic. If, on the other hand, the soil has fixed all the phosphate it can, and future dressings continue to yield increments, then phosphate manuring will be a sound proposition on this area.

Phosphate fixation and phosphate manuring constitute major problems which have hardly been tackled and much remains to be done both in the laboratory and the field. In the former respect, a study should be made of the soil changes which have occurred in the experimental plots, and, in the latter, trials with rock phosphate are urgently indicated. Present facilities admit only of very slow progress.

Pegassy Clay.

The position, in regard to the experiments under discussion, is summarised below, where only statistically significant effects are recorded :

Field.	Estate.	Cycle Age.	Truog Available Phosphate, p.p.m.		Effect of Phosphate on			
			Topsoil.	Subsoil.	Cane Tonnage.	Sucrose Content.	Juice Purity.	Glucose Ratio.
21 Gv.	Wales	P.	196	74	...	...	Adverse	...
43 E.	Uitvlugt	P.	63	20	...	...	Adverse	Adverse
36 S.D.	Cane Grove	1st R.	Trace	Trace	Beneficial	...	...	...
10 C (a)	Wales	1st R.	35	22	Beneficial	...	...	...
10 C (b)	Wales	1st R.	26	15	Beneficial	...	...	...
64 Z.	Uitvlugt	1st R.	>200	53	...	...	...	...
69 Z.	Uitvlugt	1st R.	200	70	...	...	...	...
31 E.	Uitvlugt	2nd R.	43	11	...	...	...	...

Phosphatic applications can be advised for Fields 36 S.D., Cane Grove and 10 C., Wales. It is of interest to note that the yields suggest, but do not definitely establish, a slight beneficial effect in Fields 31 and 43 E., Uitvlugt, the areas which, after those sites on which definite beneficial results have been secured, show least available phosphate.

As in the case of the frontlands, much more experimentation is required.

Potassic Manures.

Frontland.

On Fields 20 and 23 R., Port Mourant, and 81 R.H., Rose Hall, there was no definite effect from the potassic dressings and such cannot be advised for these areas.

At Blairmont (Field 26 Rp.), sulphate of potash had a definite beneficial effect on the second ratoon yield. It had been applied to the plants and first ratoons without effect and if the response is considered as the cumulative effect of three dressings it is uneconomic. As in the case of phosphate, however, if the soil has fixed all the potash it can and increments can be expected in future, then potassic dressings might prove advisable, especially if a cheaper form (*e.g.*, muriate) be used.

Pegassy Clay.

Potassic dressings had a definite adverse effect on plant cane yield in Field 21 Gv., Wales, (Potash 0.44 and 0.35 mg. eqs./100 gm. in topsoil and subsoil, respectively) and a definite beneficial effect in Field 43 E., Uitvlugt (Potash 0.44 and 0.12 mg. eqs./100 gm. in topsoil and subsoil, respectively).

Potash was given in two forms and it is of considerable interest that the cheaper form, muriate, proved definitely less deleterious than the sulphate at Wales and definitely more beneficial than the sulphate at Uitvlugt. In fact, at the latter site, sulphate did not increase the yield at all as compared with 'no potash.'

In Field 31 E., Uitvlugt, which contains slightly less potash than Field 43 E., there was a definite beneficial effect from potash on the second ratoons. A similar effect had been noted in the plant canes and this area, like field 43 E., Uitvlugt, should benefit from potassic dressings, preferably as muriate.

APPENDIX I.—RAINFALL DATA.

Rainfall at Sophia Experiment Station.

Month.		Rainfall 1937-1939, Inches.	Average Rainfall 1921-1938, Inches.	Excess or Deficit During Growth of the Various Experiments.										
				Field 14 W.	Fields 2 & 10 W.	Field 4 E.	Fields 2, 16, & 17 E. 6 & 15 W.	Fields 8 E. & 4 W.	Field 11 W. A.B.	Fields 9 & 14 E. & 16 W.	Fields 10 & 13 E.	Field 1 E.	Field 13 W.	Field 4 E.
June	1937	19.95	14.37	+ 5.58										
July		19.70	11.26	+ 8.44										
August		8.23	8.54	− 0.31	− 0.31									
September		2.61	2.68	− 0.07	− 0.07	− 0.07								
October		4.57	3.95	+ 0.62	+ 0.62	+ 0.62	+ 0.62							
November		3.60	5.63	− 2.03	− 2.03	− 2.03	− 2.03	− 2.03	− 2.03					
December		12.76	14.17	− 1.41	− 1.41	− 1.41	− 1.41	− 1.41	− 1.41	− 1.41				
January	1938	13.72	9.18	+ 4.54	+ 4.54	+ 4.54	+ 4.54	+ 4.54	+ 4.54	+ 4.54				
February		14.20	4.27	+ 9.93	+ 9.93	+ 9.93	+ 9.93	+ 9.93	+ 9.93	+ 9.93				
March		14.76	4.78	+ 9.98	+ 9.98	+ 9.98	+ 9.98	+ 9.98	+ 9.98	+ 9.98	+ 9.98	+ 9.98	+ 9.98	
April		8.94	5.46	+ 3.48	+ 3.48	+ 3.48	+ 3.48	+ 3.48	+ 3.48	+ 3.48	+ 3.48	− 3.48	+ 3.48	
May		11.14	11.77	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63	− 0.63
June		12.99	14.37	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38	− 1.38
July		12.86	11.26	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60	+ 1.60
August		15.92	8.54	+38.34	+24.32	+ 7.38	+ 7.38	+ 7.38	+ 7.38	+ 7.38	+ 7.38	− 7.38	+ 7.38	+ 7.38
September		2.42	2.68			+32.01	− 0.26	− 0.26	− 0.26	− 0.26	− 0.26	− 0.26	− 0.26	− 0.26
October		3.37	3.95				− 0.58	− 0.58	− 0.58	− 0.58	− 0.58	− 0.58	− 0.58	− 0.58
November		5.29	5.63				+31.24	+30.62	− 0.34	− 0.34	− 0.34	− 0.34	− 0.34	− 0.34
December		7.71	14.17						+30.28	+32.31	− 6.46	− 6.46	− 6.46	− 6.46
January	1939	12.25	9.18								+ 3.07	+ 3.07	+ 3.07	+ 3.07
February		4.11	4.27								− 0.16	+15.86	− 0.16	− 0.16
March		4.78	4.78								+15.70		...	...
April		8.74	5.46										+ 3.28	+ 3.28
													+18.98	+ 5.52

RAINFALL AT PLANTATION PORT MOURANT.

Month.		Rainfall 1937-1939, Inches.	Average Rainfall 1880-1938, Inches.	Excess or Deficit during Growth of the Various Experiments.			
				Fields 20 & 23 R.	Field 7 A.W., A.B.	Field 1 P.M.E.	Field 5 A.
August	1937	4.41	5.40	− 0.99			
September		0.86	1.76	− 0.90	− 0.90	− 0.90	
October		2.95	1.75	+ 1.20	+ 1.20	+ 1.20	
November		3.70	3.32	+ 0.38	+ 0.38	+ 0.38	
December		8.30	7.71	+ 0.59	+ 0.59	+ 0.59	
January	1938	13.34	6.71	+ 6.63	+ 6.63	+ 6.63	
February		13.10	5.05	+ 8.05	+ 8.05	+ 8.05	
March		12.08	5.13	+ 6.95	+ 6.95	+ 6.95	+ 6.95
April		12.29	5.61	+ 6.68	+ 6.68	+ 6.68	+ 6.68
May		14.72	9.15	+ 5.57	+ 5.57	+ 5.57	+ 5.57
June		8.86	9.29	− 0.43	− 0.43	− 0.43	− 0.43
July		7.99	7.91	+ 0.08	+ 0.08	+ 0.08	+ 0.08
August		18.12	5.40	+12.72	+12.72	+12.72	+12.72
September		1.19	1.76	+46.53	+47.52	− 0.57	− 0.57
October		1.23	1.75			− 0.52	− 0.52
November		2.58	3.32			− 0.74	− 0.74
December		5.16	7.71			+45.69	− 2.55
January	1939	4.29	6.71				− 2.42
February		3.65	5.05				− 1.40
March		9.87	5.13				+ 4.74
							+28.11

RAINFALL AT PLANTATION SKELDON.

Month.		Rainfall 1937—1938, Inches.	Average Rainfall 1906—1938, Inches.	Excess or Deficit during Growth of the Experiment. Field 8 Sp.
October	1937	2.20	3.06	− 0.86
November		3.64	3.76	− 0.12
December		6.82	7.14	− 0.32
January	1938	14.46	7.05	+ 7.41
February		18.00	4.94	+13.06
March		9.61	5.74	+ 3.87
April		16.46	6.41	+10.05
May		11.80	10.18	+ 1.62
June		11.42	10.95	+ 0.47
July		6.28	9.16	− 2.88
August		9.99	6.32	+ 3.67
September		2.81	2.72	+ 0.09
October		1.60	3 06	− 1.46
November		1.23	3.76	− 2.53
				+32.07

RAINFALL AT PLANTATION ALBION.

Month.		Rainfall 1937—1939, Inches.	Average Rainfall 1865—1938, Inches.	Excess or Deficit during Growth of the Various Experiments. Field 23 B.	Field 49 A.
October	1937	3.78	1.83	+ 1.95	
November		5.25	3.62	+ 1.63	
December		8.37	8.09	+ 0.28	
January	1938	12.06	6.77	+ 5.29	
February		14.17	5.04	+ 9.13	
March		14.96	5.63	+ 9.33	
April		13.96	6.34	+ 7.62	+ 7.62
May		12.83	9.30	+ 3.53	+ 3.53
June		9.46	9.08	+ 0.38	+ 0.38
July		7.35	8.32	− 0.97	− 0.97
August		14.67	5.62	+ 9.05	+ 9.05
September		1.56	1.97	− 0.41	− 0.41
October		1.30	1.83	− 0.53	− 0.53
November		2.86	3.62	− 0.76	− 0.76
December		5.73	8.09	+45.52	− 2.36
January	1939	4.48	6.77		− 2.29
February		5.55	5.04		+ 0.51
					+13.77

RAINFALL AT PLANTATION ROSE HALL.

Month.	Rainfall 1937—1939, Inches.	Average Rainfall 1907—1938, Inches.	Excess or Deficit during Growth of the Various Experiments.		
			Field 81 R.H.	Field 5 C.	Field 1 F.F.A.
December 1937	11.40	9.36	+ 2.04		
January 1938	11.85	8.07	+ 3.78		
February	14.03	6.19	+ 7.84	+ 7.84	
March	15.01	6.17	+ 8.84	+ 8.84	
April	15.07	6.04	+ 9.03	+ 9.03	
May	13.06	10.84	+ 2.22	+ 2.22	+ 2.22
June	8.02	11.01	− 2.99	− 2.99	− 2.99
July	8.00	10.13	− 2.13	− 2.13	− 2.13
August	11.64	6.21	+ 5.43	+ 5.43	+ 5.43
September	1.46	2.17	− 0.71	− 0.71	− 0.71
October	2.34	2.56	− 0.22	− 0.22	− 0.22
November	3.41	3.39	+ 0.02	+ 0.02	+ 0.02
December	7.81	9.36	+33.15	− 1.55	− 1.55
January 1939	5.45	8.07		− 2.62	− 2.62
February	5.96	6.19		− 0.23	− 0.23
March	10.48	6.17		+22.93	+ 4.31
					+ 1.53

RAINFALL AT PLANTATION PROVIDENCE, BERBICE.

Month.	Rainfall 1937—1938, Inches.	Average Rainfall 1909—1938, Inches.	Excess or Deficit during Growth of the Experiment
			Field 14 E.W.
October 1937	2.32	2.89	− 0.57
November	4.23	3.43	+ 0.80
December	8.97	10.25	− 1.28
January 1938	12.32	8.92	+ 3.40
February	15.54	5.81	+ 9.73
March	12.71	5.26	+ 7.45
April	14.66	6.49	+ 8.17
May	12.23	11.25	+ 0.98
June	7.89	12.43	− 4.54
July	8.73	11.33	− 2.60
August	11.97	7.13	+ 4.84
September	2.05	2.62	− 0.57
October	2.54	2.89	− 0.35
November	2.50	3.43	− 0.93
			+24.53

RAINFALL AT PLANTATION BLAIRMONT.

Month.		Rainfall 1937—1939, Inches.	Average Rainfall 1897—1938, Inches.	Excess or Deficit during Growth of the Various Experiments.			
				Field 71 B.L.	Fields 24 & 26 Rp.	Field 2 Ab.	Field 37 Rp.
October	1937	2.55	2.46	+ 0.09			
November		5.83	3.46	+ 2.37			
December		9.93	9.56	+ 0.37	+ 0.37		
January	1938	11.49	7.80	+ 3.69	+ 3.69	+ 3.69	
February		18.27	5.20	+13.07	+13.07	+13.07	
March		13.01	6.46	+ 6.55	+ 6.55	+ 6.55	
April		16.47	7.10	+ 9.37	+ 9.37	+ 9.37	+ 9.37
May		13.45	11.52	+ 1.93	+ 1.93	+ 1.93	+ 1.93
June		8.29	11.56	− 3.27	− 3.27	− 3.27	− 3.27
July		7.20	9.66	− 2.46	− 2.46	− 2.46	− 2.46
August		18.31	6.77	+11.54	+11.54	+11.54	+11.54
September		1.14	2.18	− 1.04	− 1.04	− 1.04	− 1.04
October		2.51	2.46	+42.21	+39.75	+ 0.05	+ 0.05
November		3.66	3.46			+ 0.20	+ 0.20
December		8.35	9.56			− 1.21	− 1.21
January	1939	6.00	7.80			− 1.80	− 1.80
February		6.61	5.20			+36.62	+ 1.41
							+14.72

RAINFALL AT PLANTATION BATH.

Month.		Rainfall 1938—1939, Inches.	Average Rainfall 1883—1938, Inches.	Excess or Deficit during Growth of the Experiment.
				Field 7 F.
March	1938	13.27	6.88	+ 6.39
April		13.45	6.67	+ 6.78
May		13.29	11.01	+ 2.28
June		12.09	10.91	+ 1.18
July		9.32	8.83	+ 0.49
August		13.13	5.41	+ 7.72
September		1.55	1.75	− 0.20
October		2.43	1.79	+ 0.64
November		5.72	3.47	+ 2.25
December		7.42	9.90	− 2.48
January	1939	7.04	8.70	− 1.66
February		6.45	5.47	+ 0.98
March		15.97	6.88	+ 9.09
April		19.80	6.67	+13.13
				+46.59

RAINFALL AT PLANTATION CANE GROVE.

Month.	Rainfall 1937—1939, Inches.	Average Rainfall 1916—1938, Inches.	Excess or Deficit during Growth of the Various Experiments.	
			Field 36 S.D.	Field 50 S.M.
December 1937	12.81	11.65	+ 1.16	
January 1938	10.66	7.97	+ 2.69	
February	12.44	4.13	+ 8.31	
March	20.46	4.54	+15.92	
April	11.44	6.13	+ 5.31	
May	13.29	11.56	+ 1.73	+ 1.73
June	8.16	11.87	— 3.71	— 3.71
July	12.54	10.08	+ 2.46	+ 2.46
August	11.37	6.99	+ 4.38	+ 4.38
September	2.30	2.38	— 0.08	— 0.08
October	3.74	3.60	+ 0.14	+ 0.14
November	2.19	5.16	— 2.97	— 2.97
December	12.41	11.65	+35.34	+ 0.76
January 1939	8.12	7.97		+ 0.15
February	2.76	4.13		— 1.37
March	6.88	4.54		+ 2.34
April	14.43	6.13		+ 8.30
				+12.13

RAINFALL AT PLANTATION ENMORE.

Month.	Rainfall 1937—1938, Inches.	Average Rainfall 1913—1938, Inches.	Excess or Deficit during Growth of the Experiment.
			Field 16 E.P.
August 1937	7.66	6.41	+ 1.25
September	4.02	2.43	+ 1.59
October	1.55	3.22	— 1.67
November	2.74	5.55	— 2.81
December	9.67	11.15	— 1.48
January 1938	10.46	8.22	+ 2.24
February	11.86	4.26	+ 7.60
March	13.59	4.59	+ 9.00
April	10.07	5.59	+ 4.48
May	10.21	10.85	— 0.64
June	6.94	11.80	— 4.86
July	10.36	9.16	+ 1.20
			+15.90

RAINFALL AT PLANTATION LUSIGNAN.

Month.	Rainfall 1937–1939, Inches.	Average Rainfall 1887–1938, Inches.	Excess or Deficit during Growth of the Various Experiments.	
			Field 76 A.	Field 65 A.W.
August 1937	7.11	5.66	+ 1.45	
September	2.68	2.22	+ 0.46	
October	2.52	2.44	+ 0.08	
November	2.39	4.84	− 2.45	
December	10.56	10.89	− 0.33	
January 1938	13.58	8.21	+ 5.37	
February	12.92	5.13	+ 7.79	
March	17.71	6.21	+11.50	+11.50
April	9.09	6.19	+ 2.90	+ 2.90
May	11.65	10.66	+ 0.99	+ 0.99
June	8.29	11.57	− 3.28	− 3.28
July	13.08	9.34	+ 3.74	+ 3.74
August	13.26	5.66	+28.22	+ 7.60
September	2.06	2.22		− 0.16
October	3.83	2.44		+ 1.39
November	3.01	4.84		− 1.83
December	11.15	10.89		+ 0.26
January 1939	9.17	8.21		+ 0.96
February	3.66	5.13		− 1.47
				+22.60

RAINFALL AT PLANTATION LA BONNE INTENTION.

Month.	Rainfall 1937—1938, Inches.	Average Rainfall 1916—1938, Inches.	Excess or Deficit during Growth of the Experiment.
			Field 15 F.
October 1937	3.53	3.37	+ 0.16
November	2.54	6.17	− 3.63
December	10.21	11.97	− 1.76
January 1938	13.39	8.92	+ 4.47
February	11.73	4.14	+ 7.59
March	15.25	4.97	+10.28
April	8.57	5.34	+ 3.23
May	10.47	11.18	− 0.71
June	9.24	12.32	− 3.08
July	12.25	9.79	+ 2.46
August	11.32	7.18	+ 4.14
September	2.14	2.36	− 0.22
October	3.46	3.37	+ 0.09
November	2.53	6.17	− 3.64
			+19.38

RAINFALL AT PLANTATION OGLE.

Month.		Rainfall 1937—1938, Inches.	Average Rainfall 1906—1938, Inches.	Excess or Deficit during Growth of the Various Epxeriments.	
				Field 109 E.	Field 45 O.
October	1937	3.36	3.34	+ 0.02	+ 0.02
November		3.56	5.09	− 1.53	− 1.53
December		10.72	11.00	− 0.28	− 0.28
January	1938	11.93	8.16	+ 3.77	+ 3.77
February		16.31	4.76	+11.55	+11.55
March		18.59	5.71	+12.88	+12.88
April		9.40	5.79	+ 3.61	+ 3.61
May		12.19	11.34	+ 0.85	+ 0.85
June		11.71	11.43	+ 0.28	+ 0.28
July		13.14	9.95	+ 3.19	+ 3.19
August		13.63	7.25	+ 6.38	+ 6.38
September		1.59	2.28	+40.72	− 0.69
October		3.25	3.34		− 0.09
					+39.94

RAINFALL AT PLANTATION DIAMOND.

Month.		Rainfall 1937-1938, Inches.	Average Rainfall 1890-1938, Inches.	Excess or Deficit during Growth of the Various Experiments.		
				Field 119 G.D.	Field 93 G.D.	Field 97 G.D.
May	1937	17.34	12.81	+ 4.53		
June		23.24	14.24	+ 9.00		
July		14.56	11.43	+ 3.13		
August		8.32	8.08	+ 0.24	+ 0.24	
September		3.88	3.76	+ 0.12	+ 0.12	
October		4.43	4.03	+ 0.40	+ 0.40	
November		4.22	5.89	− 1.67	− 1.67	− 1.67
December		9.85	12.18	− 2.33	− 2.33	− 2.33
January	1938	15.43	9.73	+ 5.70	+ 5.70	+ 5.70
February		16.62	6.03	+10.59	+10.59	+10.59
March		20.59	7.74	+12.85	+12.85	+12.85
April		10.16	7.28	+ 2.88	+ 2.88	+ 2.88
May		13.97	12.81	+ 1.16	+ 1.16	+ 1.16
June		12.28	14.24	− 1.96	− 1.96	− 1.96
July		16.85	11.43	+ 5.42	+ 5.42	+ 5.42
August		14.70	8.08	+50.06	+33.40	+ 6.62
September		2.93	3.76			− 0.83
						+38.43

RAINFALL AT PLANTATION WALES.

Month.	Rainfall 1937—1939, Inches.	Average Rainfall 1906—1938, Inches.	Excess or Deficit during Growth of the Various Experiments.		
			Field 10 C. A,B.	Field 21 Gv.	Field 39 V. A,B.
December 1937	8.60	12.47	− 3.87		
January 1938	15.37	9.72	+ 5.65		
February	20.19	5.66	+14.53	+14.53	
March	21.14	7.33	+13.81	+13.81	+13.81
April	10.25	6.98	+ 3.27	+ 3.27	+ 3.27
May	12.52	13.72	− 1.20	− 1.20	− 1.20
June	12.66	14.67	− 2.01	− 2.01	− 2.01
July	14.82	11.76	+ 3.06	+ 3.06	+ 3.06
August	10.74	8.28	+ 2.46	+ 2.46	+ 2.46
September	3.96	3.77	+ 0.19	+ 0.19	+ 0.19
October	3.49	4.23	− 0.74	− 0.74	− 0.74
November	3.58	6.12	+35.15	− 2.54	− 2.54
December	8.67	12.47		− 3.80	− 3.80
January 1939	11.60	9.72		+ 1.88	+ 1.88
February	5.01	5.66		− 0.65	− 0.65
March	6.72	7.33		− 0.61	+13.73
				+27.65	

RAINFALL AT PLANTATION VERSAILLES.

Month.	Rainfall 1937—1938, Inches.	Average Rainfall 1916—1938, Inches.	Excess or Deficit during Growth of the Experiment.
			Field 34 V.S.
November 1937	4.54	5.66	− 1.12
December	9.83	12.46	− 2.63
January 1938	13.10	8.83	+ 4.27
February	16.78	4.18	+12.60
March	14.83	5.12	+ 9.71
April	10.46	5.28	+ 5.18
May	11.13	10.98	+ 0.15
June	13.80	13.17	+ 0.63
July	14.19	10.41	+ 3.78
August	14.52	8.39	+ 6.13
September	3.36	3.46	− 0.10
October	7.84	3.28	+ 4.56
November	4.75	5.66	− 0.91
			+42.25

Rainfall at Plantation Leonora.

Month.		Rainfall 1937—1939, Inches.	Average Rainfall 1906—1938, Inches.	Excess or Deficit during Growth of the Various Experiments.	
				Fields 35 C.I. & 16 Gv.	Field 53 Sv. A.B.
October	1937	1.64	3.68	− 2.04	
November		4.25	6.23	− 1.98	
December		10.68	11.48	− 0.80	
January	1938	16.91	9.51	+ 7.40	
February		13.56	5.18	+ 8.38	
March		14.31	5.61	+ 8.70	
April		9.45	5.74	+ 3.71	
May		12.51	12.83	− 0.32	− 0.32
June		12.96	12.83	+ 0.13	+ 0.13
July		12.74	10.95	+ 1.79	+ 1.79
August		8.66	7.19	+ 1.47	+ 1.47
September		1.63	2.69	− 1.06	− 1.06
October		3.44	3.68	− 0.24	− 0.24
November		3.22	6.23	+25.14	− 3.01
December		5.83	11.48		− 5.65
January	1939	10.98	9.51		+ 1.47
February		5.94	5.18		+ 0.76
March		6.07	5.61		+ 0.46
April		6.72	5.74		+ 0.98
					− 3.22

RAINFALL AT PLANTATION UITVLUGT.

Month.		Rainfall 1937—1939, Inches.	Average Rainfall 1916—1938, Inches.	Excess or Deficit during Growth of the Various Experiments.					
				Field 69 Z.	Field 43 E.	Field 64 Z.	Field 71 M.Z.	Field 46 DeW.	Field 31 E.
August	1937	7.48	7.88	− 0.40					
September		2.48	3.21	− 0.73					
October		2.92	4.60	− 1.68					
November		5.54	6.97	− 1.43	− 1.43	− 1.43			
December		11.17	13.25	− 2.08	− 2.08	− 2.08	− 2.08		
January	1938	19.60	10.47	+ 9.13	+ 9.13	+ 9.13	+ 9.13		
February		17.22	4.90	+12.32	+12.32	+12.32	+12.32		
March		17.85	5.43	+12.42	+12.42	+12.42	+12.42	+12.42	
April		10.12	6.16	+ 3.96	+ 3.96	+ 3.96	+ 3.96	+ 3.96	+ 3.96
May		15.05	13.30	+ 1.75	+ 1.75	+ 1.75	+ 1.75	+ 1.75	+ 1.75
June		15.58	14.61	+ 0.97	+ 0.97	+ 0.97	+ 0.97	+ 0.97	+ 0.97
July		12.93	11.93	+ 1.00	+ 1.00	+ 1.00	+ 1.00	+ 1.00	+ 1.00
August		11.08	7.88	+ 3.20	+ 3.20	+ 3.20	+ 3.20	+ 3.20	+ 3.20
September		2.45	3.21	− 0.76	− 0.76	− 0.76	− 0.76	− 0.76	− 0.76
October		5.30	4.60	+37.67	+ 0.70	+40.48	+ 0.70	+ 0.70	+ 0.70
November		2.22	6.97		− 4.75		− 4.75	− 4.75	− 4.75
December		7.21	13.25		− 6.04		+37.86	− 6.04	− 6.04
January	1939	15.09	10.47		+ 4.62			+ 4.62	+ 4.62
February		5.96	4.90		+ 1.06			+ 1.06	+ 1.06
March		7.27	5.43		+36.07			+18.13	+ 1.84
									+ 7.55

APPENDIX II.

(*a*) Soils of Variety Trial Sites.

Plantation :—	Sophia Sugar Experiment Station.													
Field No. :—	1 E.		2 E.		4 E. A, B.		8 E.		9 E.		10 E.		13 E.	
Sample No. :—	D. 1233	D. 1234	D. 1094	D. 1095	D. 1235	D. 1236	D. 1118	D. 1119	D. 1239	D. 1240	D. 1241	D. 1242	D. 1429	D. 1430
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	5.91	6.85	6.34	5.44	5.50	6.75	5.74	7.32	5.94	7.42	6.31	6.85	6.68	7.70
Exchange pH	5.03	6.19	4.66	4.29	4.11	5.81	4.80	6.56	4.29	6.51	4.97	6.11	5.53	6.89
M.P.S.	47.3	45.8	53.3	54.3	46.1	50.3	46.5	46.4	45.3	48.2	48.7	46.2	41.2	42.0
% Sand	5.5	10.4	3.0	4.0	5.4	13.4	8.0	4.0	7.0	2.7	7.2	6.0	5.2	3.2
Index of Texture	46	44	53	54	45	48	45	46	44	48	47	45	41	41
% Soluble Salts	0.110	0.239	0.076	0.174	0.044	0.194	0.159	0.226	0.028	0.202	0.044	0.269	0.039	0.156
% Organic Matter	1.60	0.89	1.79	1.15	1.90	0.84	1.68	0.98	1.40	0.69	1.10	0.73	1.21	1.40
% Nitrogen	0.143	0.098	0.142	0.117	0.092	0.088	0.105	0.088	0.125	0.078	0.112	0.078	0.138	0.094
Carbon/Nitrogen ratio	6.51	5.44	7.3	5.7	11.98	5.56	9.3	6.5	6.48	5.12	5.75	5.44	5.10	8.62
Rate of Solution	179	−1	110	13	61	33	33	37	45	33	129	0	...	...
Lime Requirement, Ton/acre $CaCO_3$	3.27	1.68	4.00	4.50	5.94	1.83	2.50	0.50	4.20	0.43	2.85	1.20	2.20	0.10

APPENDIX II *(Contd.)*.

(a) SOILS OF VARIETY TRIAL SITES.

Plantation :—	SOPHIA SUGAR EXPERIMENT STATION.													
Field No. :—	14 E.		16 E. A, C.		17 E.		2 W.		4 W. A, D.		6 W.		10 W.	
Sample No :—	D. 1251	D. 1252	D. 1253	D. 1254	D. 1255	D. 1256	D. 1243	D. 1244	D. 1247	D. 1248	D. 1269	D. 1270	D. 1433	D. 1434
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft	1—2 ft.	0—1 ft.	1—2 ft
Normal pH	6.21	7.10	6.17	6.53	6.49	8.20	5.57	6.04	5.22	5.92	6.39	7.46	5.70	7.63
Exchange pH	5.29	6.31	4.90	5.54	5.27	7.05	4.09	5.02	4.13	5.44	6.04	6.31	4.63	6.73
M.P.S.	45.5	43.1	45.7	44.8	45.3	38.5	37.7	46.6	45.1	49.8	55.6	58.3	...	...
% Sand	20.0	45.5	22.5	22.0	18.5	32.5	7.0	6.5	2.0	2.5	3.0	2.0	8.8	6.8
Index of Texture	42	34	41	40	42	32	36	45	47	49	55	58	37	39
% Soluble Salts	0.072	0.122	0.037	0.061	0.038	0.059	0.028	0.119	0.054	0.265	0.078	0.084	0.034	0.162
% Organic Matter	1.12	0.50	1.35	0.97	1.06	0.41	1.93	1.07	1.51	0.87	1.42	1.06	0.91	0.56
% Nitrogen	0.076	0.066	0.060	0.057	0.081	0.046	0.129	0.105	0.118	0.125	0.113	0.162	0.130	0.086
Carbon/Nitrogen ratio	8.52	4.39	13.01	9.93	7.58	5.26	8.66	5.93	7.43	4.02	7.31	3.81	4.06	3.79
Rate of Solution	37	0	177	187	104	79	90	−354	61	43	327	176	...	...
Lime Requirement, Ton/acre $CaCO_3$	2.42	0.36	3.00	1.61	2.49	...	5.25	3.36	5.85	2.46	2.97	1.17	3.80	0.50

APPENDIX II (*Contd.*).

(*a*) SOILS OF VARIETY TRIAL SITES.

Plantation :	SOPHIA SUGAR EXPERIMENT STATION.										ALBION.	
Field No. :—	11 W. A.B.		13 W.		14 W.		15 W.		16 W.		23 B.	
Sample No. :	D. 1509	D. 1510	D. 1427	D. 1428	D. 1425	D. 1426	D. 1108	D. 1109	D. 1279	D. 1280	B. 551	B. 552
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	5.69	7.82	5.65	7.67	6.32	7.53	5.96	6.82	6.06	7.65	4.55	4.49
Exchange pH	4.61	6.79	4.49	6.63	5.32	6.49	4.53	5.69	5.05	6.57	3.88	3.81
M.P.S.	..	...	44.1	43.5	...	...	39.3	40.3	38.7	39.1	...	...
% Sand	5.9	5.9	5.4	2.3	34.6	44.1	26.2	25.0	11.5	12.0	13.6	11.4
Index of Texture	42	43	43	43	28	23	34	35	36	37	42	40
% Soluble Salts	...	...	0.032	0.114	0.022	0.044	0.022	0.070	0.023	0.048	0.047	0.093
% Organic Matter	2.01	1.72	1.21	1.32	1.38	0.92	1.28	0.96	0.65	1.06	2.11	1.38
% Nitrogen	0.153	0.098	0.126	0.082	0.129	0.093	0.124	0.070	0.244	0.214	0.172	0.122
Carbon/Nitrogen ratio	7.60	10.20	5.55	9.37	6.22	5.71	6.00	7.90	1.55	2.87	7.15	6.57
Rate of Solution	...	...	...	...	...	...	115	134	132	109	...	...
Lime requirement. Ton/acre $CaCO_3$	...	...	4.10	0.50	2.70	0.70	2.50	0.90	2.80	0.40	9.70	8.80

APPENDIX II *(Contd.)*.

(a) SOILS OF VARIETY TRIAL SITES.

Plantation :-	PORT MOURANT.						ROSE HALL.				BLAIRMONT.			
Field No. :—	7 A.W. A.B.		1 P.M.E.		5 A.		5 C.		37 Rp.		24 Rp.		2 Ab.	
Sample No. :—	B. 475	B. 476	B. 547	B. 548	B. 662	B. 663	B. 660	B. 661	B. 527	B. 528	B. 282	B. 283	B. 658	B. 659
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	5.96	6.99	7.08	6.07	5.10	5.00	4.37	4.29	5.55	5.85	5.15	5.40	5.47	5.86
Exchange pH	4.92	5.97	6.21	4.95	3.90	4.22	3.40	3.46	3.87	4.66	4.17	4.54	4.22	4.73
M.P.S.	48.4	49.4	...	...	...	...	...	...	53.1	53.4	49.5	46.3	...	...
% Sand	5.5	3.5	...	...	4.5	2.3	9.1	6.3	2.0	1.0	6.0	3.5	11.5	5.8
Index of Texture	47	49	41	40	42	43	48	47	53	53	48	46	47	45
% Soluble Salts	0.061	0.110	0.173	0.065	0.013	0.101	0.021	0.079	0.023	0.066	0.046	0.077	0.026	0.066
% Organic Matter	3.53	1.48	...	1.93	2.91	2.32	4.41	3.29	2.88	1.19	4.94	2.83	5.48	3.22
% Nitrogen	0.274	0.109	0.086	0.135	0.203	0.168	0.223	0.189	0.349	0.150	0.323	0.159	0.333	0.204
Carbon/Nitrogen ratio	7.45	7.88	...	8.30	8.30	8.00	11.50	10.20	6.44	4.59	9.05	10.30	9.50	9.20
Rate of Solution	224	149	...	...	...	...	...	...	—17	25	6	20	...	...
Lime Requirement, Ton/acre $CaCO_3$	5.52	1.58	...	...	8.30	6.00	20.80	19.30	8.90	3.70	7.80	4.60	7.60	3.80

Appendix II (*Contd.*).

(*a*) Soils of Variety Trial Sites.

Plantation :—	Providence.		Bath.		Cane Grove.		Lusignan.				La Bonne Intention.		Ogle.	
Field No. :—	14 E.W.		7 F.		56 S.M.		76 A.		65 A.W.		15 F.		109 E.	
Sample No. : -	B. 332	B. 333	B. 664	B. 665	D. 1200	D. 1201	D. 1090	D. 1091	D. 1511	D. 1512	D. 1446	D. 1447	D. 1102	D. 1103
Sampling Depth :–	0 -1 ft.	1–2 ft.	0–1 ft.	1- 2 ft.	0 1 ft.	1–2 ft.	0–1 ft.	1 2 ft.	0 1 ft.	1—2 ft.	0- 1 ft.	1- 2 ft.	0- 1 ft.	1 2 ft.
Normal pH	4.78	4.75	5.10	5.25	4.59	4.56	5.00	5.10	5.86	5.39	4.58	5.05	5.27	6.11
Exchange pH	3.70	3.95	3.90	4.10	3.68	3.66	3.65	4.07	4.73	4.47	3.73	4.01	4.11	4.97
M.P.S.	51.4	52.1	...	...	57.0	8.9	50.5	48.5	...	...	...	...	45.3	50.8
% Sand	8.4	2.4	3.7	3.8	7.0	6.5	9.0	7.5	33.4	11.4	9.4	6.7	22.9	7.8
Index of Texture	50	52	52	46	57	58	49	47	45	38	37	39	39	49
% Soluble Salts	0.037	0.112	0.022	0.042	0.034	0.029	0.020	0.057	0.017	0.114	0.039	0.139	0.031	0.071
% Organic Matter	2.16	0.79	7.71	4.66	6.32	5.13	1.279	0.621	1.93	1.62	1.42	0.86	1.72	0.76
% Nitrogen	0.211	0.095	0.585	0.252	0.337	0.223	0.156	0.095	0.141	0.120	0.138	0.098	0.147	0.098
Carbon/Nitrogen ratio	5.94	4.86	11.2	10.7	10.88	13.34	8.19	6.54	8.00	7.89	5.99	5.07	7.80	4.50
Rate of Solution	18	20	...	...	16	24	18	38	...	...	...	...	63	14
Lime Requirement, Tons per ac $CaCO_3$	9.70	5.50	12.30	7.30	19.30	18.40	10.00	4.40	5.00	3.90	8.90	5.40	5.80	2.50

Appendix II (*Contd.*).

(*a*) Soils of Variety Trial Sites.

Plantation :—	Diamond.						Wales.		Versailles		Uitvlugt.			
Field No. :—	93 G.D.		97 G.D.		119 G.D.		39 V. A. B.		34 Vs.		71 M.Z.		46 de W.	
Sample No. :—	D. 1207	D. 1208	D. 1100	D. 1101	D. 1366	D. 1367	D. 1203	D. 1204	D. 1452	D. 1453	D. 1249	D. 1250	D. 1104	D. 1105
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	4.78	4.47	5.34	5.03	4.56	4.44	4.66	5.04	4.68	4.77	4.78	4.90	4.71	4.60
Exchange pH	3.80	3.80	3.97	3.79	3.83	3.82	3.65	3.82	3.81	3.99	3.73	3.83	3.82	3.72
M.P.S.	51.6	53.4	58.2	56.4	..	...	52.0	56.7	...	...	52.7	51.7	63.7	58.0
% Sand	3.0	5.5	6.5	5.0	16.5	15.0	7.0	3.5	6.9	4.5	2.9	1.4	5.5	3.2
Index of Texture	51	52	57	55	49	48	51	56	40	40	52	52	63	57
% Soluble Salts	0.027	0.041	0.025	0.016	0.018	0.030	0.011	0.010	0.017	0.066	0.013	0.011	0.031	0.012
% Organic Matter	3.09	2.00	0.84	3.03	5.02	3.03	2.12	1.11	1.45	0.88	2.91	1.53	5.82	2.35
% Nitrogen	0.187	0.133	0.158	0.108	0.260	0.169	0.165	0.098	0.164	0.106	0.245	0.136	0.285	0.147
Carbon/Nitrogen ratio	9.62	8.71	3.1	16.2	11.19	10.41	7.46	6.56	5.13	4.83	6.88	6.56	11.8	9.2
Rate of Solution	...	...	−15	−9	..	...	9	20	...	...	18	13	−8	3
Lime Requirement, Ton/acre $CaCO_3$	11.00	11.70	12.90	13.70	15.40	14.00	13.60	11.80	10.20	7.20	13.60	10.78	17.50	13.70

APPENDIX II *(Contd.)*.

(a) SOILS OF VARIETY TRIAL SITES.

Plantation :—	LEONORA.					
Field No. :—	16 Gv.		53 Sv. A, B.		35 C.I.	
Sample No. :—	D. 1106	D. 1107	D. 1198	D. 1199	D. 1448	D. 1449
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	5.23	5.29	4.83	4.83	4.65	5.05
Exchange pH	4.19	3.97	3.66	3.77	3.76	3.93
M.P.S.	45.6	47.2	45.4	49.5	...	...
% Sand	10.3	12.5	5.4	8.0	10.7	5.3
Index of Texture	44	45	44	48	36	39
% Soluble Salts	0.017	0.055	0.016	0.015	0.018	0.054
% Organic Matter	1.10	0.96	2.25	1.85	1.40	1.22
% Nitrogen	0.092	0.091	0.182	0.157	0.137	0.118
Carbon/Nitrogen ratio	6.9	5.7	7.16	6.83	5.90	5.97
Rate of Solution	49	11	19	11	...	...
Lime Requirement, Ton/acre $CaCO_3$	5.90	4.60	13.80	14.00	10.00	8.50

Appendix II *(Contd.)*.

(*b*) Soils of Manurial Trial Sites.

Plantation :—	Skeldon.		Albion.		Port Mourant.				Rose Hall.				Blairmont.	
Field No. :—	8 Springlands.		23 Belevedere.		20 Resource		23 Resource		81 Rose Hall.		1 A Field	Field.	71 Bush Lot.	
Sample No. :—	B 267	B 268	B. 553	B. 554	B. 549	B. 550	B 479	B. 480	B 394	B. 395	B. 666	B 667	B. 224	B. 225
Sampling Depth :	0 1 ft	1—2 ft.	0 1 ft	1- 2 ft	0—1 ft.	1 2 ft	0 1 ft.	1—2 ft.	0 1 ft.	1 2 ft.	0- 1 ft	1 2 ft.	0 1 ft.	1 2 ft.
Normal pH	5.52	4.73	4.68	4.53	5.55	6.59	5.46	6.32	5.35	6.24	4.96	5.42	5.34	5.42
Exchange pH	5.07	4.28	3.89	3.91	4.83	5.59	4.37	5.48	4.49	5.40	4.00	4.51	3.92	4.63
M.P.S.	50.3	53.5	...	...	...	...	50.6	50.2	50.5	52.2	...	...	50.7	48.4
% Sand	5.2	7.5	10.3	9.2	9.2	5.2	2.0	2.5	5.6	5.0	5.0	2.3	8.9	3.7
Index of Texture	49	52	38	38	38	41	50	50	49	51	45	42	49	48
% Soluble Salts	0.371	0.349	0.040	0.111	0.022	0.105	0.050	0.132	0.082	0.185	0.030	0.109	0.036	0.137
% Organic Matter	1.10	2.07	2.57	1.29	2.86	0.90	2.74	0.88	2.42	1.65	4.28	1.68	2.70	1.21
% Nitrogen	0.135	0.226	0.156	0.116	0.230	0.103	0.223	0.093	0.179	0.122	0.269	0.154	0.241	0.129
Carbon/Nitrogen ratio	4.71	5.33	8.56	6.48	7.21	5.05	7.12	5.49	7.80	7.80	9.30	6.30	6.49	5.44
Rate of Solution	−54	−47	...	...	...	...	65	26	72	33	...	...	137	42
Lime Requirement, Ton/acre $CaCO_3$	2.50	5.20	10.80	6.70	8.80	1.60	6.19	1.99	5.34	2.28	...	...	8.50	3.40
Available P_2O_5 p.p.m. (Truog)	<10	<10	nil	nil	18	32	Trace	10	30	56	nil	35	26	19
Citric P_2O_5 p.p.m.	8	18	...	...	...	...	31	8	56	45	...	...	116	22
Exch. and water sol. bases mg. eqs./100 gms.														
Lime	2.47	6.33	5.04	4.62	7.84	4.35	5.82	3.62	7.55	7.42	...	...	6.60	4.62
Magnesia	8.95	16.48	7.30	7.12	12.62	11.65	11.40	10.62	13.05	14.78	...	...	4.87	13.30
Potash	0.33	0.29	0.23	0.20	0.24	0.32	0.37	0.38	0.31	0.29	...	...	0.57	0.23
Soda	3.25	0.80	...	...	...	...	1.53	4.53	1.51	2.22	...	...	1.42	3.07

APPENDIX II (*Contd.*).

(*b*) SOILS OF MANURIAL TRIAL SITES.

Plantation :—	BLAIRMONT.				CANE GROVE.		ENMORE.		LA BONNE INTENTION.		OGLE.		DIAMOND.	
Field No. :—	26 Rampoor.		2 Abary.		36 South Diamond.		16 East Paradise.		15 Felicity.		45 Ogle A. B.		119 Great Diamond.	
Sample No. :—	B. 376	B. 377	B. 658	B. 659	D. 1277	D. 1278	D. 964	D. 965	D. 1444	D. 1445	D. 1020	D. 1021	D. 1366	D. 1367
Sampling Depth :—	0–1 ft.	1–2 ft.	0–1 ft.	1–2 ft.	0–1 ft.	1–2 ft.	0–1 ft.	1–2 ft.	0–1 ft.	1–2 ft.	0–1 ft.	1–2 ft.	0–1 ft.	1–2 ft.
Normal pH	5.05	6.12	5.47	5.86	4.64	4.60	4.77	4.65	4.63	5.18	4.98	5.07	4.56	4.44
Exchange pH	4.19	5.00	4.22	4.73	3.59	3.64	3.52	3.60	4.08	4.35	3.63	3.84	3.83	3.82
M.P.S.	53.0	48.2	...	...	57.4	65.2	51.9	54.0	...	...	47.6	50.4	...	...
% Sand	5.4	1.5	11.5	5.8	2.2	1.1	2.5	2.0	8.3	7.4	7.7	2.5	16.5	15.0
Index of Texture	52	48	47	45	57	65	51	54	34	38	46	50	49	48
% Soluble Salts	0.062	0.105	0.026	0.066	0.019	0.021	0.036	0.070	0.051	0.196	0.038	0.107	0.018	0.030
% Organic Matter	3.22	0.68	5.48	3.22	4.45	6.02	2.73	1.74	1.39	0.85	1.94	1.15	5.02	3.03
% Nitrogen	0.269	0.087	0.353	0.204	0.263	0.222	0.204	0.150	0.138	0.095	0.143	0.116	0.260	0.169
Carbon/Nitrogen ratio	7.20	4.50	9.50	9.20	9.80	15.88	7.78	6.76	5.86	5.17	7.85	5.75	11.19	10.41
Rate of Solution	30	35	...	...	9	21	51	14	...	...	16	2	...	...
Lime Requirement, Ton/acre $CaCO_3$	7.60	2.40	7.60	3.80	17.10	17.30	13.30	12.60	8.20	3.80	9.00	6.60	15.40	14.00
Available P_2O_5 p.p.m. (Truog)	82	84	nil	nil	Trace	Trace	11	10	32	24	28	16	200	90
Citric P_2O_5 p.p.m.	36	12	...	...	40	21	92	36	...	...	133	46	...	...
Exch. and water sol. bases mg. eqs./100 gms.														
Lime	4.77	2.45	...	...	3.33	2.77	6.00	5.10	3.65	4.19	5.44	5.02	...	...
Magnesia	13.25	13.83	...	...	3.15	1.50	7.41	9.83	7.58	11.08	14.26	11.77	...	...
Potash	0.35	0.34	...	...	0.46	0.39	0.51	0.38	0.34	0.19	0.60	0.27	...	...
Soda	1.23	3.40	...	...	0.31	0.60	0.64	1.21	...	...	0.90	2.86	...	...

Appendix II (*Contd.*).

(*b*) Soils of Manurial Trial Sites.

Plantation :—	Wales.				Versailles.		Leonora.		Uitvlugt.					
Field No. :—	10 Cottage A.		10 Cottage B.		21 Goedverwagting.		34 Versailles.		35 Cornelia Ida.		69 Zeeburg.		64 Zeeburg.	
Sample No. :—	D. 1265	D. 1266	D. 1263	D. 1264	D. 1517	D. 1518	D. 1454	D. 1455	D. 1450	D. 1451	D. 1474	D. 1475	D. 1257	D. 1258
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	4.31	4.36	4.90	4.58	4.89	4.91	4.80	4.90	4.83	4.82	4.36	4.36	4.49	4.92
Exchange pH	3.73	3.78	3.98	3.89	3.92	3.92	3.81	3.93	3.78	3.99	3.89	3.86	4.24	4.09
M.P.S.	62.3	51.9	53.8	44.7	...	...	...	...	...	...	...	...	63.3	52.4
% Sand	6.0	11.0	10.0	13.0	5.3	3.7	4.4	3.4	7.9	5.5	6.1	6.9	4.5	1.0
Index of Texture	61	50	52	42	55	52	36	41	37	38	42	40	62	52
% Soluble Salts	0.037	0.034	0.039	0.022	0.034	0.017	0.019	0.050	0.017	0.050	0.148	0.082	0.970	0.049
% Organic Matter	7.82	5.08	2.95	5.34	7.87	4.48	1.34	0.92	1.39	1.07	3.13	2.43	8.09	3.11
% Nitrogen	0.266	0.220	0.309	0.203	0.322	0.204	0.154	0.115	0.146	0.113	0.287	0.188	0.496	0.185
Carbon/Nitrogen ratio	17.06	13.39	5.55	15.26	14.20	12.80	5.05	4.63	5.53	5.51	6.32	7.52	9.46	9.75
Rate of Solution	−15	−26	−11	−6	...	...	..	...	...	...	...	...	−160	−45
Lime Requirement, Ton/acre $CaCO_3$	18.10	13.50	13.90	12.00	13.70	14.20	8.60	6.80	9.10	5.60	12.70	10.80	15.00	9.10
Available P_2O_5 p.p.m. (Truog)	35	22	26	15	196	74	18	18	38	24	200	70	>200	53
Citric P_2O_5 p.p.m.	196	79	167	68	...	...	...	...	...	...	...	...	570	148
Exch. and Water Sol. bases mg. eqs./100 gms.														
Lime	1.25	0.90	2.80	1.10	...	...	3.71	3.50	4.13	3.80	3.42	2.65	4.75	3.08
Magnesia	1.00	0.62	1.50	1.20	...	...	5.89	9.63	5.32	8.75	1.49	2.02	1.88	6.90
Potash	0.18	0.15	0.24	0.07	0.44	0.35	0.45	0.27	0.32	0.13	0.41	0.16	0.45	0.20
Soda	0.15	0.15	0.19	0.09	...	...	...	...	...	...	...	...	2.32	0.26

Appendix II (*Contd.*).

(*b*) Soils of Manurial Trial Sites.

Plantation :—	Uitvlugt.			
Field No. :—	43 East		31 East	
Sample No. :—	D. 1505	D. 1506	D. 1364	D. 1365
Sampling Depth :—	0—1 ft.	1—2 ft.	0—1 ft.	1—2 ft.
Normal pH	4.39	4.44	4.77	4.75
Exchange pH	3.74	3.77	3.92	3.85
M.P.S.	...	...	51.8	50.6
% Sand	5.2	1.0	9.5	6.5
Index of Texture	51	42	50	49
% Soluble Salts	0.042	0.020	0.015	0.012
% Organic Matter	10.27	1.95	3.80	1.72
% Nitrogen	0.405	0.123	0.224	0.120
Carbon/Nitrogen ratio	14.73	9.22	9.86	8.32
Rate of Solution	...	...	−3	−3
Lime Requirement, Ton/acre $CaCO_3$	18.70	11.00	13.80	12.00
Available P_2O_5 p.p.m. (Truog)	63	20	43	11
Citric P_2O_5 p.p.m.	...	...	...	...
Exch. and Water Sol. bases mg. eqs./100 gms.				
Lime	2.88	2.72	2.52	1.30
Magnesia	1.50	5.40	0.75	1.60
Potash	0.44	0.12	0.34	0.21
Soda	...	...	0.14	0.20

APPENDIX III.

Calendar of Agricultural Operations on Manurial Trial Sites.

Experiment No.	Page of Bulletin.	Estate.	Field.	Size of Plots. Acres.	Date of Planting	Date of Applying Limestone and/or Slaked Lime.	Date of Applying Potash.	Date of Applying Superphosphate and/or Basic Slag.	Date of Applying Sulphate of Ammonia.	Date of Applying Nicifos.	Date of Applying Nitrate of Soda.	Date of Applying Nitro chalk.	Date of Reaping.
A 5	54	Skeldon	8 Sp.	0.027	8.IX.34	—	—	—	13.X.34[1] 24.X.35[2] 6.X.36[3] 6.X.37[4]	—	—	—	3.X.35[1] 24.IX.36[2] 30.IX.37[3] 14.XI.38[4]
A 2	51	Port Mourant	23 R.	0.051	13.VIII.36	8.IX.36[1, 5]	8.IX.36[1]	8.IX.36[1, 6]	8.IX.36	—	—	—	10.VIII.37[1] 6.IX.38[2]
B 2	68												
C 2	73												
A 1	49	„	20 R.	0.051	13.VIII.36	8.IX.36[1, 5]	9.IX.37[2]	9.IX.37[2, 6]	9.IX.37[2]	—	—	—	10.VIII.37[1] 7.IX.38[2]
B 1	68												
C 1	72												
A 7	56	Albion	23 B.	0.034	30.IX.37	—	—	—	11.XI.37[1]	11.XI.37[1]	—	11.XI.37[1]	8.XII.38[1]
A 3	52	Rose Hall	81 R.H.	0.041	11.I.36	18.I.36[1, 5]	26.II.36[1] 3.II.37[2] 29.XII.37[3]	26.II.36[1, 6] 3.II.37[2, 6] 29.XII.37[3, 6]	26.II.36[1] 3.II.37[2] 29.XII.37[3]	—	—	—	21.I.37[1] 3.XII.37[2] 15.XI.38[3]
B 3	69												
C 3	74												
A 11	58	„	1 F.F.A.	0.041	23.IV.38		—	13.V.38[1, 6, 7]	13.V.38[1]	13.V.38[1]	—	13.V.38[1]	23.III.39[1]
A 4	52	Blairmont	26 R.P.	0.041	6.XII.35	25.I.36[1, 5]	24.II.36[1] 14.I.37[2] 30.XII.37[3]	24.II.36[1, 6] 14.I.37[2, 6] 30.XII.37[3, 6]	24.II.36[1] 14.I.37[2] 30.XII.37[3]	—	—	—	25.XI.36[1] 10.XI.37[2] 21.IX.38[3]
B 4	69												
C 4	74												
D 1	78	„	71 B.L.	0.051	4.VIII.34	10.VIII.34[1]	—	—	—	—	—	—	10.X.35[1] 7.X.36[2] 7.X.37[3] 22.IX.38[4]

[1]Plants. [2]First Ratoons. [3]Second Ratoons. [4]Third Ratoons. [5]Basic Application. [6]Superphosphate. [7]Basic Slag.

APPENDIX III (*Contd.*).

CALENDAR OF AGRICULTURAL OPERATIONS ON MANURIAL TRIAL SITES.

Experiment No.	Page of Bulletin.	Estate.	Field.	Size of Plots, Acres.	DATE OF								
					Planting.	Applying Limestone and/or Slaked Lime.	Applying Potash.	Applying Superphosphate and/or Basic Slag.	Applying Sulphate of Ammonia.	Applying Nicifos.	Applying Nitrate of Soda.	Applying Nitrochalk.	Reaping.
A 12	60	Blairmont	2 Ab.	0.041	13.I.38	—	—	—	24.II.38[1]	24.II.38[1]	24.II.38[1]	24.II.38[1]	16.II.39[1]
A 20	63	Cane Grove	36 S.D.	0.040	21.XI.36	25.XI.36[1]	—	—	18.XII.36[1] 18.I.38[2]	18.XII.36[1] 18.I.38[2]	18.XII.36[1] 18.I.38[2]	18.XII.36[1] 18.I.38[2]	14.XII.37[1] 8.XII.38[2]
D 2	78	Enmore	16 E.P.	0.051	28.VII.34	31.VII.34[1]	—	—	—	—	—	—	2.X.35[1] 8.IX.36[2] 12.VIII.37[3] 9.VIII.38[4]
A 8	56	La Bonne Intention	15 F.	0.037	29.IX.37	—	—	—	3.XI.37[1]	3.XI.37[1]	—	3.XI.37[1]	1.XII.38[1]
A 6	54	Ogle	45 O.	0.041	28.VII.34	—	—	—	2.X.34[1] 8.I.36[2] 30.X.36[3] 3.XI.37[4]	—	—	—	23.X.35[1] 6.X.36[2] 11.X.37[3] 1.XI.38[4]
D 3	78	„	45 O.	0.042	28.VII.34	3.VIII.34[1]	—	—	—	—	—	—	22.X.35[1] 7.X.36[2] 11.X.37[3] 2.XI.38[4]
A 9	56	Versailles	34 Vs.	0.041	15.X.37	—	—	—	18.XI.37[1]	18.XI.37[1]	—	18.XI.37[1]	19.XI.38[1]

[1]Plants. [2]First Ratoons. [3]Second Ratoons. [4]Third Ratoons. [5]Basic Application. [6]Superphosphate. [7]Basic Slag.

Appendix III (*Contd.*).

Calendar of Agricultural Operations on Manurial Trial Sites.

Experiment No.	Page of Bulletin.	Estate.	Field.	Size of Plots, Acres.	Date of								
					Planting.	Applying Limestone and/or Slaked Lime.	Applying Potash.	Applying Super-phosphate and/or Basic Slag.	Applying Sulphate of Ammonia.	Applying Nicifos.	Applying Nitrate of Soda.	Applying Nitro-chalk.	Reaping.
A 16	63	Wales	10 C. (A)	0.038	26.IX.36	—	—	28.X.36[1, 7] 9.XII.37[2, 7]	28.X.36[1] 9.XII.37[2]	28.X.36[1] 9.XII.37[2]	28.X.36[1] 9.XII.37[2]	28.X.36[1] 9.XII.37[2]	24.XI.37[1] 21.X.38[2]
A 17	63	„	10 C. (B)	0.038	26.IX.36	—	—	28.X.36[1, 7] 9.XII.37[2, 7]	28.X.36[1] 9.XII.37[2]	28.X.36[1] 9.XII.37[2]	28.X.36[1] 9.XII.37[2]	28.X.36[1] 9.XII.37[2]	18.XI.37[1] 20.X.38[2]
A 13 B 5 C 5	61 70 76	„	21 Gv.	0.041	5.II.38	—	21.III.38[1]	21.III.38[1, 7]	21.III.38[1]	—	—	—	31.III.39[1]
A 19	63	Uitvlugt	69 Z.	0.034	26.VII.36	—	—	21.X.37[2, 7]	21.X.37[2]	21.X.37[2]	21.X.37[2]	21.X.37[2]	9.VIII.37[1] 27.IX.38[2]
A 18	63	„	64 Z.	0.034	12.IX.36	—	—	22.X.36[1, 7] 25.XI.37[2, 7]	22.X.36[1] 25.XI.37[2]	22.X.36[1] 25.XI.37[2]	22.X.36[1] 25.XI.37[2]	22.X.36[1] 25.XI.37[2]	27.X.37[1] 4.X.38[2]
A 14 B 6 C 6	61 70 76	„	43 E.	0.034	23.X.37	—	2.XII.37[1]	2.XII.37[1, 7]	2.XII.37[1]	—	—	—	23.II.39[1]
A 15 B 7 C 7	62 71 78	„	31 E.	0.034	22.II.36	24.I.36[1, 5]	26.III.36[1] 13.V.37[2] 3.V.38[3]	23.I.36[1, 7] 13.V.37[2, 7] 3.V.38[3, 7]	24.III.36[1] 13.V.37[2] 3.V.38[3]	—	—	—	17.III.37[1] 13.IV.38[2] 30.III.39[1, 3]
A 10	56	Leonora	35 C.I.	0.025	6.X.37	—	—	—	17.XI.37[1]	17.XI.37[1]	—	17.XI.37[1]	8.XI.38[1]

[1] Plants. [2] First Ratoons. [3] Second Ratoons. [4] Third Ratoons. [5] Basic Application. [6] Superphosphate. [7] Basic Slag.